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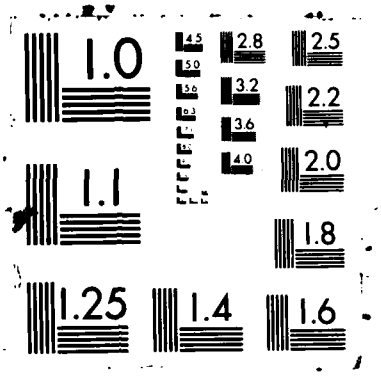
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SEA-STATE ENGINEERING ANALYSIS SYSTEM (SEAS) REVISED EDITION 1

by

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WIS Report 10
Revised November 1986

WAVE INFORMATION STUDIES OF US COASTLINES

Prepared for DEPARTMENT OF THE ARMY
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A description is provided for the Sea-State Engineering Analysis System (SEAS) which is a computer-based system designed to provide direct access to wave hindcast data produced by the Wave Information Study. This first revised edition describes new SEAS system capabilities and additional data sets which are now available. New revised editions/supplements will be issued as other new data sets or capabilities are added to SEAS.

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Summary

In late 1976, a study to produce a wave climate for US coastal waters was initiated at the US Army Engineer Waterways Experiment Station. This climatological information is to be produced by numerical simulation of wave growth, propagation, and decay under historical wind fields. It is imperative, if such an approach is to be used for applications of significant economic consequences, that the entire set of input data, all numerical techniques, and all general assumptions be thoroughly investigated and documented to determine the types and magnitudes of errors intrinsic to their use.

There are four basic steps in the calculation of waves from past meteorological data. First, pressure data must be assimilated into a pressure field that depicts all important synoptic weather features. Gradients of pressure in time and space, along with certain thermal characteristics of the planetary boundary layer, are then used to construct an estimate of a quasi-geostrophic wind speed and direction at some level where it is assumed that the frictional effects of the ocean surface on the atmosphere are negligible. Next, an analysis of the vertical variation of the wind in the planetary boundary layer is used to reduce this wind to a common 19.5-metre level. Finally, these surface winds are input into a numerical wave model to simulate wave generation, propagation, and decay.

If any one of the above steps contributes significant bias (on a geographical basis, seasonally or overall), it can introduce errors into the results that are difficult or even impossible to remove. Similarly, if any step contains a large random error, certain statistics (such as duration curves, extremes, and conditional probabilities) can be seriously affected. Thus, each step must be checked independently where possible. This serves to substantiate the merit of the physics and data processing techniques used in each step and, hence tends to lend support to the worth of the final product more so than the performance of only wave comparisons, regardless of how extensive these comparisons may be. Indeed, if each step is shown to be physically valid, it can be

argued that the results should be as accurate in sites where there are no wave data for verification as they are in areas where large amounts of gage data are available. Additionally, if all steps are modeled correctly, factors such as direction and angular spreading, which are not generally available for comparisons, can reasonably be assumed to be at least approximately correct.

It is believed that numerical modeling of surface waves represents an evolution toward a more reliable means of obtaining wave information for climatological purposes. Coupled with the concurrent evolution of statistical methods, data processing technology, and planning and design capabilities, this tool offers a vastly improved ability to deal with coastal problems. Furthermore, by relating data to physical processes, an underlying understanding of the wave phenomena is gained. This can increase confidence in recognizing the significance of trends, distributions, and correlations among various data elements, which can, in turn, increase confidence in many basic planning, design, construction, operation, and maintenance decisions.

The final product of this wave hindcasting system is a voluminous data base of wave parameter data organized by site and time interval. To provide access to this data base for Corps field offices, a computer-based system for storage, retrieval, and computation was planned. This report will discuss the system designed for this purpose, the Sea-State Engineering Analysis System (SEAS). A guide for use of the SEAS system is also provided herein.

Preface

In late 1976, a study to produce a wave climate for US coastal waters was initiated at the US Army Engineer Waterways Experiment Station (WES). The Wave Information Study (WIS) was authorized by the Department of the Army, Office, Chief of Engineers (OCE), as a part of the Field Data Collection Program which is managed by the WES Coastal Engineering Research Center (CERC). Mr. John H. Lockhart, OCE, is Technical Monitor for the Coastal Field Data Collection Program. The US Army Engineer Division, South Atlantic, and the US Army Engineer Division, New England, also authorized funds during FY 1978 to expedite the execution of the Atlantic coast portion of this program.

WIS Report 10 describes the Sea-State Engineering Analysis System (SEAS), a computer-based system designed to provide direct access to the available wave hindcast data on a Corps-wide basis. The SEAS system is available on the WES DPS-8 computer. An appendix to this report provides a user's manual which serves as a guide to using the SEAS system.

This first revised edition of WIS Report 10 describes new SEAS system capabilities and additional data sets which are now available. New revised editions and/or supplements will be issued as other new data sets or capabilities are added to SEAS. The availability of the SEAS system and data base is limited and can only be accessed through Corps of Engineers offices.

The study was conducted at CERC under the direction of Dr. James R. Houston, and Mr. Charles C. Calhoun, Jr., Chief and Assistant Chief, CERC, respectively, Mr. H. Lee Butler, Chief, Research Division, and Dr. Edward F. Thompson, Chief, Coastal Oceanography Branch (COB). This report was prepared by Mrs. Danielle S. McAneny with assistance from Mr. William D. Corson, Mrs. Barbara A. Tracy, Dr. Robert E. Jensen, and Mrs. Rebecca M. Brooks, COB.

The general design of the SEAS system, the user's manual appended to this report, and the computer program code required to retrieve data and interact with the user were produced under contract by DATEC, Inc., Gretna, Louisiana. Some of the statistical reporting routines were

provided under contract by Dr. Leon Borgman, University of Wyoming, Laramie, Wyoming.

Director of WES during the preparation of this supplement was COL Allen F. Grum, USA. Commander and Director during publication was COL Dwayne G. Lee, CE. Technical Director was Dr. Robert W. Whalin.

Contents

SEA-STATE ENGINEERING ANALYSIS SYSTEM (SEAS)

Introduction

1. The US Army Corps of Engineers' (Corps') requirement for wave climate data is extensive for all coastal areas in the United States. The needs range from estimates of the probability of extreme wave heights by direction for structural design to a synoptic directional wave climate for sediment transport calculations. Estimates of yearly and seasonal variability in the wave climate are also desired. Since the exact requirements for the data vary with Corps organizational element and on a project-to-project basis, a computer-based analysis system was designed to give site-specific access to the wave data base for individual calculations. This storage, retrieval, and computation system is the Sea-State Engineering Analysis System (SEAS).

2. The principal reasons for implementation of SEAS for coastal wave information are:

a. It is not now possible to predict all locations where wave information will be required in the future.

b. It is not financially feasible to compute a wave climate with detailed refraction analyses at all sites along a coast; however, as a need for data arises for a particular point, site-specific data can be input into an analysis program.

c. Requirements may vary on a site-by-site basis as well as for different projects.

d. The program library may be updated to incorporate advances in the technology of nearshore process calculations.

e. Additional data can be incorporated into the data base as they become available.

f. The data will be available on-line to Corps field offices.

System Description

3. SEAS is a composite system that includes:

   a. A data base of hindcast wave parameter data organized by location and chronologically by time interval.

   b. A retrieval system to allow extraction of any subset of the data base.

   c. A program library of statistical routines to produce desired reports.

Initial data base

4. SEAS was established initially with wave parameter data for only the US Atlantic coast. The time period covered is a 20-year span from January 1956 through December 1975 (at 3-hr intervals). Sites included are:

   a. 166 nearshore stations.

   b. 73 shelf zone stations.

   c. 13 deepwater stations.

5. The WIS hindcast data and the procedures used in the hindcast have been described in WIS Reports 1-9 and 11-15.* Appendix D provides maps indicating the locations of the Atlantic sites. Since a major portion of the Corps' coastal works will be more directly related to the nearshore zone, WIS Reports 8 and 9, which describe the Phase III (nearshore) wave data, should be given considerable attention. Every effort has been made to ensure the most accurate information possible. Comparisons in WIS Reports 3 and 8 indicate excellent agreement between the hindcast and measured data. However, since some storms may pass

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* Rpt 1, Corson, Resio, and Vincent (1980); Rpt 2, Corson et al. (1981); Rpt 3, Corson and Resio (1981); Rpt 4, Resio, Vincent, and Corson (1982); Rpt 5, Resio (1982); Rpt 6, Corson et al. (1982); Rpt 7, Ebersole (1982); Rpt 8, Jensen (1983a); Rpt 9, Jensen (1983b); Rpt 11, Tracy (1982); Rpt 12, Resio and Tracy (1983); Rpt 13, Brooks and Corson (1984); Rpt 14, Corson et al. (1986); and Rpt 15, Corson and Tracy (1985).

across the ocean unrecorded, it is unlikely that the hindcast data perfectly represent all actual wave conditions. Also, due to the difficulty associated with verifying hindcast wave conditions of the North Atlantic for a 20-year period (nearly 15 million records of wave height, period, and direction), some erroneous data may not have been located during WIS editing. As erroneous data are identified, proper adjustments will be made where possible.

Future additions to data base

6. The following new data sets are being added to SEAS as they become available:

a. US Pacific coast wave parameters (1956-1975).

b. US Gulf of Mexico wave parameters (1956-1975).

c. Great Lakes wave parameters.

d. Recorded water-level data.

e. Precomputed probability distributions by location.

f. Wind parameters.

Retrieval system

7. SEAS provides an interactive question/answer procedure to specify a desired subset of the data base. Subset definition is first by location (station number) and then by time period. Once a data subset is defined, SEAS initiates a batch job that mounts the appropriate library tape and copies the required data to a disc file for report processing. The mechanics of keeping up with tape numbers and file names are handled by SEAS.

Basic SEAS program library

8. Table 1 shows programs that are available as the basic SEAS library.

Table 1

Basic SEAS Program Library

Report No.	Title
101	Basic Tabulation of Significant Wave Properties
102	Time Plot of Significant Wave Properties
103	Joint Frequency for Significant Wave Height Versus Spectral Peak Period
104	Histogram of Significant Wave Height
105	Histogram of Wave Spectral Peak Period
106	Histogram of Wave Direction of Origin
107	Summary Statistics of Selected Wave Data
201	Estimated Probabilities for Maximum Wave Height and Associated Period
301	Estimated Probabilities for Individual Wave Height and Period
810	Percent Occurrence Tables
820	Wave Height Return Period Tables
830	20-Year Summary Statistics

External SEAS program library

9. Future additions of programs to SEAS will be added as external library programs to be executed by special run commands outside the basic SEAS system. See Appendix A, Section 20 for programs available in this library.

Use of System

10. For accessing SEAS on the US Army Engineer Waterways Experiment Station (WES) DPS-8 system, users must first obtain a USERID from the WES Information Technology Laboratory (ITL). The ITL Customer Assistance Group at 601/634-2131 (FTS 542-2131) will make arrangements for acceptance of funding authorization (Form 2544) and set up the

required USERID. Users should request that at least 200 links of disc storage be allocated for SEAS USERIDs to allow for creation of large data files.

11. To the maximum extent practicable, SEAS has been designed to be a stand-alone system that guides the user through the various steps of extracting a data set for a particular location and time period and then making various statistical computations with this data set to produce desired reports.

12. SEAS is basically an interactive system accessible from a remote desktop terminal with either printer or screen display. All SEAS functions can be initiated from such a terminal; however, an option allows for performing all report computations and producing output in either interactive or batch mode.

13. For the most efficient use of SEAS (and the user's time), it is suggested that the user do the following:

a. Read the user's manual in Appendix A.

b. Peruse the examples in Appendix B.

c. Select a small interval of data to extract.

d. Using the manual as a guide, process each SEAS report.

Once the user has become familiar with capabilities and limitations of SEAS, more extensive data sets can be processed more effectively.

14. For complete descriptions of all SEAS functions, a SEAS User's Manual is provided as Appendix A. Examples of available statistical reports are given in Appendix B.

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APPENDIX A: SEA-STATE ENGINEERING ANALYSIS SYSTEM (SEAS) USER'S MANUAL

CONTENTS

1.0 SYSTEM OVERVIEW

SEAS is a system of integrated interactive and batch programs that performs a variety of data retrieval and report processing functions. With the SEAS system, the user may retrieve a subset of wave hindcast data from an extensive data base and use these data to prepare a variety of reports. The reports may then be displayed at the user's terminal with an option to direct them to a high-speed printer either at the US Army Engineer Waterways Experiment Station (WES) Information Technology Laboratory (ITL), Vicksburg, Mississippi, or at the user's own office.

SEAS is currently executing on the Honeywell DPS-8 computer system located at WES ITL by means of remote terminal dial-up capability. Contact the WES ITL Customer Assistance Group at 601/634-2131 (FTS 542-2131) to make arrangements for a USERID to access SEAS on this system.

1.1 Basic Functions

Once the user has gained access to the system, the appropriate function can be selected and initiated. Although all functions are initiated interactively (i.e., from a user's terminal), selected functions may be executed in batch mode to provide more efficient use of system resources. The basic functions of the SEAS system are described in the following paragraphs.

1.1.1 Data extract

This function is initiated interactively and then completed in batch mode. It is used to retrieve hindcast wave data prior to report processing. Data are retrieved from tape and copied to a user-defined file. An example of a SEAS session to perform a data extract is given in Appendix B.

1.1.2 Report process

The purpose of this function is to prepare and display report text. It may be run in either interactive or batch mode. If it is run interactively, the user may preview report text at the terminal prior to printing it.

1.1.3 Display files

This function identifies a user's files currently allocated. It is used to (a) identify data files that are available for report input and (b) locate files no longer required and subject to purging. A "file" may consist of wave data or report text.

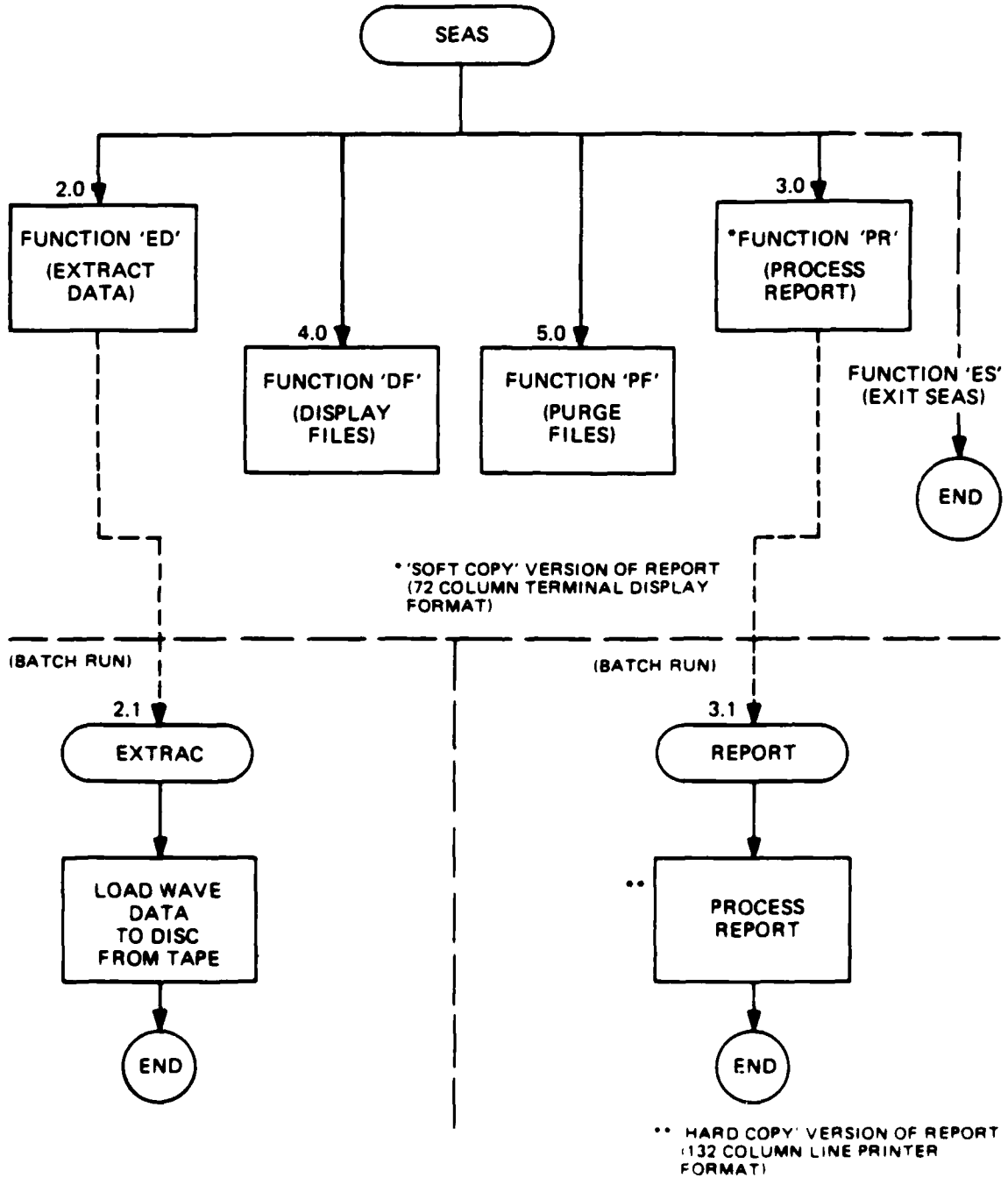
1.1.4 Purge files

This function is used to selectively purge user files that are no longer required by the user who created them. Frequent monitoring of stored files is recommended to avoid disc storage charges as well as to free disc space for creation of new files.

1.2 System Data Base

The SEAS system is capable of performing a number of statistical analyses in the form of various report texts using source input from an extensive data base of numerically simulated hindcast wave data. Data are retained on offline media (magnetic tape) for economy and are selectively loaded to user-designated files from which the data can be accessed more efficiently. Wave data are segregated by oceanographic region (e.g., Atlantic Ocean) with each region consisting of a number of sites (also known as stations) for which readings have been obtained. Data for each individual station are ordered chronologically. The SEAS data base now contains data for 252 Atlantic Ocean stations and 222 Pacific Ocean stations, encompassing a 20-year period from January 1956 through December 1975 (at 3-hr intervals).

1.3 System Flowchart



2.0 INITIATE COMPUTER SESSION

Prior to executing SEAS, the user must first gain access to the WES computer system from a remote terminal. This may be accomplished by following the standard procedures listed below.

2.1 WES Computer Dial-Up

The following steps are performed in the order listed:

2.1.1 Turn the terminal power switch to the "ON" position.

2.1.2 Dial the computer (via telephone) and wait for connect tone (601/634-2160 or FTS 542-2160).

2.1.3 Insert the telephone receiver into the terminal acoustic coupler device.

2.1.4 Wait for the terminal "carrier" indicator to light.

2.1.5 Depress the transmit key (normally labeled "RETURN").

2.2 USERID Entry

The user will be prompted by the system to enter a preassigned user identification code (maximum 12 characters). Processing will proceed only if a valid USERID entry is made. USERID is obtained from WES ITL.

System Prompt	User Response*	Next Step
USERID --	(Valid userid)	2.3
	(Invalid userid)	2.2

*Note: All "User Response" entries noted within this text are issued to the computer by depressing the transmit key (key normally labeled "RETURN") immediately after typing in the appropriate user response.

2.3 Password Entry

The user will be prompted by the system to enter a preassigned password code (maximum 12 characters). If the entered password is correct, processing will continue; if not, the computer session is terminated. (The string of "#" characters represents a mask supplied by the system to assist in retaining user password confidentiality.)

System Prompt	User Response	Next Step
PASSWORD	(Valid password)	2.4
############	(Invalid password)	2.3

2.4 Clear AFT Table

As a precautionary measure, it is recommended that the user clear the AFT (Available File Table) before executing SEAS. This is accomplished via the software command "CLEAR."

System Prompt	User Response	Next Step
(Cursor/carriage return)	CLEAR	3.1

3.0 PROGRAM EXECUTION AND SETUP

You are now ready to execute the SEAS Program. Follow the steps below.

3.1 Program Execution

This step will load SEAS and begin program execution.

System Prompt	User Response	Next Step
(Cursor/carriage return)	(1) FRN ROHHSEAS/XSEAS,R	3.2
	or	
	(2) FRN ROHHSEAS/BATCH,R	
	(Invalid entry)	3.1

Note: The "O" character in both program execution lines is a zero. Command line (1) executes a version of SEAS which allows both interactive and batch display of all reports. Command line (2) executes a batch-only version of SEAS which provides only a minimum of interactive communication with the user. All reports (except precomputed data reports) are then produced as batch jobs with reports accessible to the user external to SEAS via JOUT. This version of SEAS has the advantage of much faster execution time.

3.2 132-Character Terminal Display

The user must indicate to SEAS if the terminal being used is capable of displaying 132 columns of report text. SEAS will then be able to properly format reports displayed at the user's terminal.

SEAS System Prompt

DOES YOUR TERMINAL HAVE 132-CHARACTER PRINT LINE (Y or N)?

User Selection	User Response	Next Step
3.2.1 Yes, print max 132 cols	Y	3.3
3.2.2 No, print max 72 cols	N	3.3

3.3 Display Program Welcome Message

SEAS is now loaded and ready for use. An introductory message can be displayed that provides the user with a listing of the current system features (e.g., station ID's, reports, etc.).

SEAS System Prompt

DO YOU WANT NEW USER INFO (Y or N)?

User Selection	User Response	Next Step
3.3.1 Yes, display message	Y	3.3.3
3.3.2 No, bypass message	N	3.4

3.3.3 Welcome message prints:

SEAS SYSTEM

.....Legend of Current System Features Prints.....

DEPRESS THE RETURN KEY TO CONTINUE PROCESSING

Depress the return key and continue with Step 3.4.

3.4 USERNAME Entry

SEAS requests the entry of a nonblank USERNAME (maximum 9 characters) that will be used to label printed output for purposes of identification (USERNAME will print in boldface "boxprint" type on the first page of printed output).

SEAS System Prompt

ENTER USERNAME (MAXIMUM 9 CHARACTERS): [?]

Note: The notation "[?]" which ends this prompt message (as well as other messages that follow) signifies that by entering the character "?" the user will be provided with a detailed explanation of the required response.

User Selection	User Response	Next Step
3.4.1 Enter username	Valid username	3.5
3.4.2 Terminate SEAS	EXIT	9.1
3.4.3 Request assistance (...Help message prints...)	?	3.4
3.4.4 Invalid entry (...Error message prints...)		3.4

3.5 Output Routing Code Entry

SEAS requests the entry of a one-digit code to designate the disposition of printed output. Output may be directed to the printer at the WES ITL in Vicksburg or queued to a user's JOUT file. [Note: If output is directed to a JOUT queue (disc file), it is the user's responsibility to see that it is either purged or printed (using the provided Honeywell utility routines) before JOUT type files are purged each day.] See Appendix C for a brief description of the JOUT command and examples of its use with SEAS report files. A complete description of this command is given in Honeywell Manual DD21, TSS Terminal/Batch Interface. Extremely large amounts of printed output can be more effectively printed on the user's computer center high-speed printer or at WES. To have large jobs mailed from the WES ITL, contact the Customer Assistance Group at FTS 542-2131.

SEAS Sytem Prompt

ENTER 1-DIGIT REPORT OUTPUT CODE (1=WES PRINTER, 2="JOUT" QUEUE):

User Selection	User Response	Next Step
3.5.1 Route to WES printer	1	4.0
3.5.2 Route to JOUT queue	2	4.0
3.5.3 Request assistance (...HELP message prints...)		3.5
3.5.4 Terminate SEAS	EXIT	9.1
3.5.5 Invalid entry (...Error message prints...)		3.5

4.0 SEAS FUNCTION SELECTION

At this point, the user can either select one of the available SEAS functions or terminate processing.

SEAS System Prompt

ENTER 2 CHARACTER FUNCTION CODE (DF,ED,PR,PF,ES): [?]

User Selection	User Response	Next Step
Generate a listing of all files currently assigned to session "USERID"	DF -OR- DISPLAY FILES	5.0
Initiate a batch run that will access wave data on the SEAS library and load the data to a file that the user can later access for report processing. (This function initiates a batch run.)	ED -OR- EXTRACT DATA	6.0
Process a report using as input a data file already loaded from tape to disc (Note: A report can either be printed at the user's terminal, or be directed to the WES printer or a JOUT queue, or both.) (Unless a report is to be displayed at the terminal this function will invoke a batch run.)	PR -OR- PROCESS REPORT	7.0
Purge selected user files that are no longer needed (refers to both data files and report files).	PF -OR- PURGE FILES	8.0
Exit SEAS	ES -OR- EXIT SEAS	9.0
Request assistance (...Help message prints...)	?	4.0
Invalid entry (...Error message prints...)		4.0

5.0 FUNCTION "DF" - DISPLAY FILE(S)

5.1 Description

This function will generate a formatted listing of all outstanding files assigned to the user that may include data files and report text files. Two processes are available with this function.

5.1.1 List all files

This listing serves a variety of uses. If the user has initiated a batch run (i.e., a data extract or report process run), he/she may use this listing to monitor the status of that run. If the user wishes to process a report, this listing can be used to identify the data file that will be used as report input. Also, the user may reference this listing periodically to locate those files (both data files and report files) that are no longer required and that may be subsequently purged from the system by SEAS function "PF" (purge files). After the listing has been printed, SEAS returns to Step 4, at which time the user may elect to process another SEAS function.

5.1.2 Query data extract file

This option allows the user to determine complete contents of an existing data extract file.

5.2 Sample Listings

Sample listings from function "DF" follow.

5.2.1 "L" Option = List all files

REC.	USERID	SNUMB	TYPE	STATUS	DATE	TIME	DATA	STATION(S)
7	ROHHDSR	7734C	DATA	ACTIVE	02/13/85	14:40	****	+A2001
8	ROHHDSR	7739C	R***	READY	12/13/85	14:41	****	+P1001
10	ROHHDSR	7921C	DATA	ACTIVE	12/13/85	15:36	****	+A2003
	USER DISK FILE: FEB14							
12	ROHHDSR	7610E	DATA	INITIAL	11/08/85	14:03	****	+A1001
	USER DISK TAPE FILE: PACI-1							

(A) (B) (C) (D) (E) (F) (G) (H) (I)

(J) (K)

The sample lines above are provided for illustrative purposes. The contents of columns (A) through (K) are interpreted as follows:

(A) = Record No. Each time functions "ED" (Extract Data) and "PR" (Process Report) are executed, a user file will be created (containing either wave data or report text, respectively). Once the appropriate job task has been initiated, an entry will be logged into the SEAS accounting file (also known as the "master queue"). This entry is used to monitor the progress of the job. The location of the record within the file (i.e., "Record No.") is also used to construct a unique label for the file that is generated by the job. This entry is required for subsequent file reference (function "PF" uses this number for identifying files to be purged, and function "PR" uses it to reference data files that will be used to prepare a report).

(B) = USERID This is the USERID entry made initially for the job which created the file (ref. paragraph 2.2).

(C) = SNUMB — All jobs run in batch mode on the Honeywell computer system are assigned a "SNUMB" number. This is an accounting number affixed by the system and is referenced when scanning report output that has been sent to the JOUT queue.

(D) = File Type — This entry defines the contents of the file and contains either "Data" (for data extract files created by function "ED") or "RNNN" (for report files created by function "PR", where NNN = SEAS Report No.).

(E) = Job Status — Status of the job which created the file:

(1) "INITIAL" — Job not yet started.

(2) "ACTIVE" — Job currently executing.

(3) "READY" — Job terminated successfully.

(4) "ABORTED" — Job terminated in error.

(F) = Run Date — Date of batch job (in MM/DD/YY format).

(G) = Run Time — Time of batch job (in HH:MM format).

(H) = Data-Record — Record No. entry for data file used to prepare a report (N/A for type = "DATA"; "****" prints).

(I) = Station(s) — Used with data file entries to denote the stations for which data have been included or excluded (prefixed by "+" or "-" character).

(J) = User Disc File — Name of data file (or tape) where "user" file or tape options are chosen.

(K) = User Tape Reel No. — Reel number of magnetic tape for "user" tape option. This reel number may also be obtained by using JOUT to list the "$$" report of the batch data extract job. For example: JOUT 7927C

FUNCTION? PRINT $$

5.2.2 "D" Option = Query data extract file

```
ENTER MASTER QUEUE DATA RECORD NUMBER (1-100) OR EXIT :
-27

*****************************************************************************
*   DISPLAY CONTENTS OF DATA FILE #0027:          TOTAL CASES:     40       *
*   FILE TYPE: SEAS DISK    FILENAME: SEAS0027                               *
*   FILE STATUS: READY      EXTRACT STARTED AT 13:21:38 ON 02 05 88          *
*                                                                            *
*   DATA INCLUDED IN THIS FILE:                                              *
*                                                                            *
*       STATIONS      YEAR      MONTH      DAY      HOUR       ACTION       *
*                                                                            *
*       41009          80,       12,       15,       09        THRU        *
*                      81,       12,       15,       23      INCLUDE!      *
*****************************************************************************
```

6.0 FUNCTION "ED" - EXTRACT DATA

6.1 Description

This function is used to identify the data set that the user requires for subsequent analysis and report processing. After the data have been appropriately identified (by station and time-frame entries), a batch run will be "spawned" (i.e. started) that will enable the function to retrieve data and copy those data from tape onto a user-designated file. This batch run will execute independently of the current user session and, once completed, will make available to the user a custom data set from which to process reports.

Identifying data to be extracted is a four-step process:

6.1.1 The user denotes whether the data defined in the next two steps are being identified with the intent of including them into the final data subset (i.e., data to be processed), or for the purpose of excluding them from the final data subset (i.e., data to be ignored). See paragraph 6.2.

6.1.2 The user identifies the station(s) for which wave data will be either included or excluded. See paragraph 6.3.

6.1.3 The user identifies the time frame(s) relevant to the above station(s). Time frame is a periodic interval of 3-hr intervals within the 20-year period 1956 through 1975. See paragraph 6.4.

6.1.4 The user identifes output file type desired:

a. SEAS disc file.

b. User disc file.

c. User tape file.

As many iterations of this process as required may be performed to identify all required data.

CAUTION: Because of disc space limitations, only one complete 20-year data set for a single station (or equivalent 58,440 records) should be extracted at any one session. A single 20-year data set requires approximately 1,500 blocks (125 links) of disc storage.

6.2 Include/Exclude Entry

This is the first step in the process of identifying hindcast data that are to be input from tape and placed on disc (ref. paragraph 6.1.1).

SEAS System Prompt

```
ENTER 1-CHARACTER DATA SELECTION CODE...
                    .. (I=INCLUDE,E=EXCLUDE,D=DONE): ?
```

User Selection	User Response	Next Step
6.2.1 Include data set	I	6.3
6.2.2 Exclude data set	E	6.3
6.2.3 Data definition complete	D	6.5
6.2.4 Terminate "DF" function	EXIT	4.0
6.2.5 Request assistance	?	6.2
(...Help message prints...)		
6.2.6 Invalid entry		6.2
(...Error message prints...)		

6.3 Station ID Entry

This entry is used to identify a station (or a series of stations) for which hindcast wave data are to be either included or excluded during the creation of a "Data Extract" file. This is the second step of the data identification process (ref. paragraph 6.1.2).

Stations may be identified singularly, or as a group if their ID's are consecutively numbered (ref. paragraphs 6.3.2 and 6.3.3).

6.3.1 Valid station ID entries

At present, there are 252 stations on file representing the Atlantic Ocean and 222 stations representing the Pacific Ocean WIS. Following, are summarized existing valid station ID's, grouped by phase:

A1001...A1013 = Atlantic Ocean Phase I stations;
A2001...A2073 = Atlantic Ocean Phase II stations;
A3001...A3166 = Atlantic Ocean Phase III stations;
P1001...P1035 = Pacific Ocean Phase I stations;
P2001...P2053 = Pacific Ocean Phase II stations;
P3001...P3134 = Pacific Ocean Phase III stations;

Note: For a comprehensive list of available station ID's, consult the report entitled "Station Dictionary/Index List," a copy of which is included in the sample output section of this manual (Appendix B). This report contains such information as station ID, geographic location, water depth, shoreline angle, etc.

6.3.2 Single station ID entry (LPSSS)

A single station is identified by a unique 5-character station ID in the format "LPSSS" where:

L = Location code (Example: "A" = Atlantic Ocean);
P = Phase code (Example: 1 = Phase I [deep ocean]
2 = Phase II [shelf zone]
3 = Phase III [nearshore]);
SSS = 3-digit sequence number assigned to each station to ensure station ID uniqueness (logically ordered by location).

6.3.3 Multiple station ID format (LPSS1-SS2)

This format is an expansion of the above and is used to identify a series of consecutively numbered stations:

L = Location code (defined in paragraph 6.3.2);
P = Phase code (defined in paragraph 6.3.2);
SS1 = 3-digit sequence number of first station in the series;
- = Delimiter (used to separate SS1 and SS2);
SS2 = 3-digit sequence number of last station in the series.

6.3.4 Station ID input

This is the second step in identifying hindcast wave data that are to be extracted from tape and placed on disc (ref. paragraph 6.1.2).

SEAS Systm Prompt

ENTER STATION IDS (LPSS OR LPSS-SSS FORMAT),...
...OR ENTER "DONE"):

User Selection	User Response	Next Step
6.3.4.1 Identify single station.	LPSSS	6.3.4
6.3.4.2 Identify stations.	LPSS1-SS2	6.3.4
6.3.4.3 Station entries complete.	DONE	6.4
6.3.4.4 Terminate "ED" function.	EXIT	4.0
6.3.4.5 Request assistance (...Help message prints...).	?	6.3.4
6.3.4.6 Invalid entry (...Error message prints...).		

6.4 Time-Frame Entry

This entry is used to identify the time period(s) from which the station hindcast data are to be referenced when creating a user's data extract

file. Data within a specified time frame are either copied from tape to file or simply ignored, depending on whether the user specified the "include" or the "exclude" option at Step 6.2. This step concludes the three-part data identification process (ref. paragraph 6.1.3).

A varied selection of time frames may be defined by using the two basic input formats provided (ref. paragraphs 6.4.2 and 6.4.3).

6.4.1 Valid time-frame entries

Irrespective of the input format used, time-frame entries consist of four basic components: (a) year, (b) month, (c) day, and (d) hour. These entries are input in a left-to-right hierarchy with year being the most significant and hour the least significant entry.

Valid component entries include:

Year (identified as Y1, Y2) = 56 through 75 (1956-1975)
Month (identified as M1, M2) = 01 through 12
Day (identified as D1, D2) = 01 through 28, 29, 30, or 31 (Depending on month)
Hour (identified as H1, H2) = 00 through 23

Note: If an entry has been made and all components have not been specified, the SEAS program will assume default values that are most logical to the input format used. This procedure applies only to the least significant (rightmost) component parts. If, for example, default values are to be assumed for month and hour, the user must enter: (a) year, (b) month, and (c) day values. All delimiters through that point will be retained (i.e., ",", "-", and "/" characters).

Examples of this feature are provided with the samples which accompany the input format definitions (paragraphs 6.4.2 and 6.4.3).

6.4.2 Iterative time-frame format

```
Input format:  Y1[-Y2],M1[-M2],D1[-D2],H1[-H2]
Y1,Y2 = Begin,end years  (if no Y2    entry, assume Y2=Y1).
M1,M2 = Begin,end months (if no M2    entry, assume M2=M1;
                          if no M1,M2 entry, assume M1=01,
                                             assume M2=12).
D1,D2 = Begin,end days   (if no D2    entry, assume D2=D1;
                          if no D1,D2 entry, assume D1=D1,
                                             assume D2=31).
H1,H2 = Begin,end hours  (if no H2    entry, assume H2=H1;
                          if no H1,H2 entry, assume H1=00,
                                             assume H2=23).
```

This format is used to identify a period that falls within a more significant time span. An example of this might be a user request to access data for a particular set of stations that includes only the first season of the 20-year period (months 1-3), but only the first 10 days of each respective month. The data requested can thus be defined to reside within the following time spans: (a) years 56-75 [all years], (b) months 1-3 [season #1], (c) days 1-10 [first 10 days of each month], and (d) hours 00-23 [all hours].

The above example could be entered using either of the following, both of which would yield identical results:

```
Sample No. 1 = 56-75,1-3,1-10,0-23   All entries specified
               56-75,1-3,1-10        Hours by default
```

A second example of this entry involves the extraction of a single year's data (1956). The only entry that needs to be qualified is year. All others can be omitted, in which case the entire range of legitimate values will be assumed by default:

Sample No. 2 =	56-56,1-12,1-31,0-23	All entries specified
	56-56,1-12,1-31	Default through hours
	56-56,1-12	Default through days
	56-56	Default through months
	56	Default through months (Default end year)

6.4.3 Continuous time-frame format

Input format: Y1,M1,D1,H1[/Y2,M2,D2,H2]

Y1,Y2 = Begin,end years (if no Y2 entry, assume Y2=Y1).
M1,M2 = Begin,end months (if no M2 entry, assume M2=12; if no M1 entry, assume M1=01).
D1,D2 = Begin,end days (if no D2 entry, assume D2=31; if no D1 entry, assume D1=01).
H1,H2 = Begin,end hours (if no H2 entry, assume H2=23; if no H1 entry, assume H1=00).

This format is used to identify a continuous period of time that has definite begin and end points. An example of this is the inclusive period from 1956 to 1960 that would be identified as follows: (a) Begin values = year 56, month 01, day 01, and hour 00; and (b) end values = year 60, month 12, day 31, and hour 23.

The above example could be entered using any one of the following that would yield identical results:

Sample No. 3 =	56,01,01,00/60,12,31,23	All values entered
	56,01,01/60,12,31	Default through hours
	56,01/60,12	Default through days
	56/60	Default through months

Note that the same 5-year period (1956 through 1960) could also be

defined using the "iterative" format: 56-60.

6.4.4 Time-frame input

The next step in identifying hindcast wave data that are to be extracted from tape and placed on file (ref. paragraph 6.1.3) is the specification of the desired time frame.

SEAS System Prompt

ENTER TIME FRAME (FORMAT A OR FORMAT B), OR ENTER "DONE" [?]

A - ITERATIVE TIME SEGMENTS: Y1-Y2,M1-M2,D1-D2,H1-H2
B - CONTINUOUS PERIOD OF TIME: Y1,M1,D1,H1/Y2,M2,D2,H2

User Selection	User Response	Next Step
6.4.4.1 "Iterative" time period	(see Format A above)	6.4.4
6.4.4.2 "Continuous" time period	(see Format B above)	6.4.4
6.4.4.3 Time entries complete	DONE	6.5
6.4.4.4 Terminate "ED" function	EXIT	4.0
6.4.4.5 Request assistance (...Help message prints...)	?	6.4.4
6.4.4.6 Invalid entry (...Error message prints...)		6.4.4

6.5 Input Verification

At this point, the user will have specified all data that will be required for report processing. All input will be "echoed" to the user's terminal for final verification. The user has the option to accept these entries, reject them, or to continue with the data identification process.

SEAS System Prompt

```
DATA TO BE INCLUDED:
  ("Include" selections print here)
DATA TO BE EXCLUDED:
  ("Exclude" selections print here)
ENTER 1 CHARACTER VERIFY CODE...
                ... (Y=YES,N=NO,R=RE-ENTER,C=CONTINUE)          [?]
```

User Selection	User Response	Next Step
6.5.1 Accept, start batch run	Y	6.6
6.5.2 Reject, exit function	N	4.0
6.5.3 Reject, redefine data	R	6.2
6.5.4 Define additional data	C	6.2
6.5.5 Terminate "ED" function	EXIT	4.0
6.5.6 Request assistance (...Help message prints...)	?	
6.5.7 Invalid entry (...Help message prints...)		

6.6 Data Extract File Type

As the final step in a data extract function, the user must specify the type of data extract file he desires. Choices include:

a. SEAS Disc File (random-access disc file specifically formulated for efficient use by internal SEAS routines).

b. USER Disc File (formatted sequential disc file intended for use by routines external to SEAS).

c. USER Tape File (formatted sequential tape file intended for use by routines external to SEAS). Tape file output is recommended for large data sets and as an intermediate step in creating a data tape to be read on another computer.

See Appendix B, pages B8-B8.1, for an example listing of a USER disc file, format information for both tape and disc USER files, and example JCL for access on the WES computer system.

SEAS System Prompt

```
ENTER 1 DIGIT DATA EXTRACT FILE TYPE CODE:
  1 = 'SEAS DISK FILE' (FILE NAME ASSIGNED AUTOMATICALLY)
  2 = 'USER DISK FILE' (FILE NAME INPUT BY USER)
  3 = 'USER TAPE FILE' (TAPE REEL NO. ASSIGNED BY COMPUTER OPERATOR)
=
```

User Selection	User Response	Next Step
6.6.1 Data to SEAS disc file	1	6.6.6
6.6.2 Data to User disc file	2	6.6.4
6.6.3 Data to User tape file	3	6.6.5

SEAS System Prompt

ENTER 1-8 CHARACTER NAME OF USER DISK FILE:

User Selection	User Response	Next Step
6.6.4 Any 1-8 character file name beginning with an alpha character	File name	6.6.6

SEAS System Prompt

ENTER 1-12 CHARACTER TAPE `EXTERNAL IDENTIFICATION NAME':

User Selection	User Response	Next Step
6.6.5 Any 1-12 character name for external tape label	Tape name	6.6.6

6.6.6 Batch "Data Extract Run Spawned" message prints:

A BATCH `DATA EXTRACT' RUN HAS BEEN INITIATED (SNUMB = XXXXX).

A batch "Data Extract" run is started (i.e., "spawned") that will execute independently of the interactive SEAS currently executing at the terminal. Make note of the Honeywell computer generated "SNUMB" number (XXXXX) that is displayed in the above message. This number is used to monitor the progress of the batch run (ref. function "DF") and to redirect print output upon completion of the batch run (only if the JOUT option is specified at Step 3.5).

TO CONTINUE RETURN TO PROGRAM STEP 4.0

7.0 FUNCTION "PR" - PROCESS REPORT

7.1 Description

This function is used to print an existing "precomputed" report, process and print a "custom" report prepared from wave data copied from tape to a SEAS disc file by function "ED", or reprint a "custom" report. Note that the reprint option is not applicable to "precomputed" reports. Before using this function to process and print a custom report, consult function "DF" (5.0) to obtain the data file "Record No." used to address the data file, as well as to confirm that the data have already been retrieved.

Reports may then be processed as described in the following paragraphs.

7.1.1 "Soft copy" report

This option refers to reports that are processed interactively as part of the user's session. If this option is chosen, the report can be reviewed at the user's terminal and if required, rerouted to a print file for "hard copy" output (see Step 7.1.3). The "soft copy" option is not available with the batch-only version of SEAS (FRN ROHHSEAS/BATCH,R) except for precomputed reports and reprints of custom reports.

Note: This option should be used sparingly as processing requirements are relatively extensive and, therefore, take longer to complete. This depends upon system load and the extent of the data being processed. Relatively quick turnaround is obtained by using the JOUT option.

7.1.2 "Hard copy" report

This option refers to reports that are processed in batch mode, independent of the user's session. If this option is selected, a batch run

will be "spawned" that will process and print the report. Output will be directed to either the WES printer or the user's JOUT file per the user's request. The terminal session will remain free for continued processing, and function "DF" can be used to monitor the progress of the batch run.

Note: This option is preferred and should be used in instances where immediate report output is not required.

7.1.3 "Soft copy"/"hard copy" option

This is a combination of paragraphs 7.1.1 and 7.1.2 above, which is available only at the time of initial request for "soft copy" output. Once a "soft copy" of the report has been produced, a "hard copy" printout may then be requested. As with paragraph 7.1.2, a batch run will be "spawned" to complete this task. The batch run will not have to perform the actual report computations as this will have been accomplished by the interactive run. This feature eliminates processing duplication.

Proceed to subsequent pages to define criteria.

7.2 Data-Record Entry

This is the first step in the generation of a custom report. Its purpose is to identify the data file that is to be used as input to the report process. This step is not required for precomputed reports since the entire 20-year data set for a chosen station has already been used to prepare the report.

SEAS System Prompt

ENTER REPORT DATA-RECORD NO.(2-1000): [?]

User Selection	User Response	Next Step
7.2.1 Identify data file	(2-2000)	7.3
7.2.2 Terminate "PR" function	EXIT	4.0
7.2.3 Request assistance (...Help message prints...)	?	7.2
7.2.4 Invalid entry (...Error message prints...)		7.2

7.3 Report Selection

This is the second step in the process of generating a report set, and at this point the specific report must be identified. A list of the reports presently available from SEAS follows:

No.	Custom Report Titles	Reference
101	Basic Tabulation of Wave Parameters	Section 10.0
102	Time Plot of Wave Parameters	Section 11.0
103	Percent Occurrence Tables of Wave Height, Period, and Direction	Section 12.0
104	Histogram of Wave Height	Section 13.0
105	Histogram of Wave Period	Section 14.0
106	Histogram of Wave Direction	Section 15.0
107	Summary Statistics of Selected Wave Data	Section 16.0
201	Estimated Probabilities for Maximum Wave Height and Associated Period	Section 17.0
301	Estimated Probabilities for Individual Wave Height and Associated Period	Section 18.0

No.	Precomputed Report Titles	Reference
810	Percent Occurrence Tables	Section 19.0, para 19.1
820	Wave Height Return Period Tables	Section 19.0, para 19.2
830	20-Year Summary Statistics	Section 19.0, para 19.3

SEAS System Prompt

User Selection	User Response	Next Step
7.3.1 Select report	(101-107,201,etc.)	7.4
7.3.2 Terminate "PR" function	EXIT	4.0
7.3.3 Request assistance (...Help message prints...)	?	7.3
7.3.4 Invalid entry (...Error message prints...)		7.3

7.4 Report Parameter Input

At this step, the user inputs a number that designates which data are to be used for report processing. three different sets of data exist at each time interval: (a) Sea wave data, (b) swell wave data, and (c) a combined sea and swell wave data set. Sea and swell parameters are derived from the sea and swell regions of the spectral output of the WIS numerical wave model. Sea or swell height (H) is calculated as

$$4*\sqrt{E_{sea}} \quad \text{or} \quad 4*\sqrt{E_{swell}}$$

where E_{sea} and E_{swell} represent the energy in the sea and swell regions of the spectrum. Sea or swell period (T) is the peak period in the sea or swell region of the spectrum. Sea or swell direction is the mean wave direction in the appropriate regions of the spectrum. Combined wave data are computed from sea and swell data, where:

(a) Height (H_s) = square root of the sum of the squares of sea and swell wave height; is equivalent to significant wave height

(b) Period (T_p) = period of the dominant wave height (sea or swell); and

(c) Direction (D_m) = direction of the dominant wave height (sea or swell).

This entry applies only to Reports 102 through 106 and will otherwise be ignored. For Reports 102 through 106, any of the three data formats may

be used for report processing. Reports 107, 201, and 301 use only combined wave parameters H_s , T_p , D_m , respectively.

SEAS System Prompt

(1) ENTER 1-DIGIT NO. (1=SEA; 2=SWELL; 3=COMBINED):

User Selection	User Response	Next Step
7.4.1 Sea H , T , D	1	7.5
7.4.2 Swell H , T , D	2	7.5
7.4.3 H_s , T_p , D_m	3	7.5
7.4.4 Terminate "PR" function	EXIT	4.0
7.4.5 Request assistance (...Help message prints...)	?	
7.4.6 Invalid entry (...Error message prints...)		7.4

7.5 Input Verification

Input of report selections is now completed. SEAS will "echo" all entries for user verification.

SEAS System Prompt

THE FOLLOWING INFORMATION HAS BEEN ENTERED:

DATA RECORD #12; REPORT #104; DATA=SEA (EXAMPLE)
... ...

ENTER 1-CHARACTER VERIFY CODE (Y=YES; N=NO):

User Selection	User Response	Next Step
7.5.1 Accept entries	Y	7.6
7.5.2 Reject, exit function	N	4.0
7.5.3 Terminate "PR" function	EXIT	4.0
7.5.4 Request assistance (...Help message prints...)	?	7.5
7.5.5 Invalid entry (...Error message prints...)		7.5

7.6 Multiple Reports Option

The user now has the option of specifying additional reports (maximum of 5) to be processed by using the same input data file previously specified (7.2). This option allows a maximum of 5 precomputed reports for the same station to be specified.

SEAS System Prompt

REQUEST ADDITIONAL REPORTS - 5 MAX. (Y=YES; N=NO):

User Selection	User Response	Next Step
7.6.1 Request additional reports	Y	7.2 or 7.3
7.6.2 No additional reports	N	7.7
7.6.3 Terminate "PR" function	EXIT	4.0
7.6.4 Invalid entry (...Error message prints...)		7.6

7.7 Report Routing

At this point the user may select either to view the report output at the terminal ("soft copy" report format) or to have the report directed to the WES printer/JOUT file ("hard copy" format). See Appendix C for a

brief description of the JOUT command and examples of its use.

SEAS System Prompt

ENTER PRINT SELECTION (S=SOFT COPY; H=HARD COPY; N=NONE):

User Selection	User Response	Next Step
7.7.1 Print "soft copy" report	S	7.7
7.7.2 Print "hard copy" report	H	7.6.5
7.7.3 Terminate "PR" function	N -or- EXIT	4.0
7.7.4 Invalid entry (...Error message prints...)		7.6

7.7.5 Batch "Report Process" run spawned, message prints:

A BATCH "REPORT" RUN HAS BEEN INITIATED (SNUMB=XXXXX).

A batch "report process" run is started (i.e. "spawned") that will execute independently of the interactive SEAS currently executing at the terminal. Make note of the Honeywell computer generated "SNUMB" number (XXXXX) that is displayed in the above message. This number is used to monitor the progress of the batch run (ref. function "DF") and to redirect print output upon completion of the batch run (only if the JOUT option is specified at Step 3.5). The batch run does not perform report calculations if preceded by a "soft copy" report process in SEAS.

TO CONTINUE RETURN TO PROGRAM STEP 4.1.

7.8 Terminal Report Display ("Soft Copy")

The requested report will be processed with the results printed at the user's terminal (printer or video screen). The SEAS program will restrict output to 60-line segments. This program-controlled interrupt is intended to provide the user with a point at which to decide whether or not to continue the report display.

If the decision is made to discontinue the display, control will proceed to Step 7.7, at which point the user may elect to produce "hard copy" report output or simply to select yet another SEAS function (in which case the report file will be automatically purged). If the user elects to continue the display, the next 60-line "page" can be printed or the report can be advanced a specified number of 60-line pages.

Depending on the report selected, the report file may contain many individual report sets (one report set per station). When printing the contents of the report file, an "end of report" condition will be noted after each individual report. If the user elects to continue the display, the next successive report will print. When all report sets have been displayed, an "end of data" condition is acknowledged. At this point the user may begin the display over again.

While the actual data displayed on both the "soft copy" and "hard copy" report versions are identical, the "hard copy" version contains additional page headings and is also preceded by a title page containing an abbreviated legend to the data used to prepare the report. The shorter headings on the "soft copy" report allow for display of more report text at the user terminal between program-controlled interrupts.

Caution: Some reports are formatted for wide carriage display. If the user's terminal is equipped for such display and the user has appropriately notified the SEAS program at Step 3.2 then all output will be displayed; otherwise, output width will be truncated to 72 columns.

The following sample illustrates the "soft copy" format of Report No. 101 ("Basic Tabulation of Wave Parameters"):

REPORT HEADING LINES	STATION: A1001 DATE YY/MM/DD	HOUR	------SEA READINGS------ HEIGHT (CM)	PERIOD (SECS)	DIRECT (AZ-DEG)	-----SWELL READINGS----- HEIGHT (CM)	PERIOD (SECS)	DIRECT (AZ-DEG)
	56/01/01	00:00	58.	3.	7.	0.	1.	0.
REPORT	56/01/01	03:00	97.	4.	9.	12.	6.	7.
TEXT	56/01/01	06:00	150.	5.	12.	81.	7.	8.
LINES	56/01/01	09:00	158.	6.	5.	129.	7.	10.

... Continue, next 60 lines or until "end of report" ...

SEAS System Prompt

... Report prints (max 60 lines), followed by prompt line: ...

		User Selection	User Reponse	Next Step
(1)	7.8.1	Continue report display	Y	7.7
(1)	7.8.2	Terminate report display	N	7.6
(1)	7.8.3	Skip selected number of pages (NN = number of pages to be skipped [>0])	SKIP NN	7.7
(1) (2) (3)	7.8.4	Restart report display from the beginning	TOP	7.7
(2)	7.8.5	End of report encountered - continue to next report	[Return key]	7.7
(3)	7.8.6	End of all reports found - continue to previous step	[Return key]	7.6
	7.8.7	Terminate "PR" function	EXIT	4.0
	7.8.8	Invalid entry (...Error message prints...)		7.7

Note: (1) Current report has not been displayed completely.
(2) Report set completed, additional report(s) may follow.
(3) All report set(s) printed (end-of-file encountered).

8.0 FUNCTION "PF" - PURGE FILE(S)

8.1 Description

This function purges selected user files generated by SEAS ("Data Extract" and "Report" files created, respectively, by functions "ED" and "PR"). Files may be purged singularly or "en masse"; however, a user can only purge his/her own files. Files are catalogued by USERID entered at system log-on time (Step 2.2) and a user cannot purge (or even reference) a file unless the current session is run under the same USERID used when creating the file. Each user is assigned a unique USERID and should be responsible for all files associated with it. Judicious file management in the form of periodic purging of nonessential files will result in reduced system overhead and more effective use of available system resources.

Function "DF" (display files) may be used to identify all files assigned to a user's USERID. Files are identified for purging by "Record No." entry (refer to illustration shown in Step 5.2).

Caution: All files *must* be purged programmatically by means of this function (PF) unless created using the "user disc file" option. Under no circumstances should a user purge a SEAS system file by any other means (e.g., vendor provided utility commands).

8.2 File Identification

At this point, the user specifies the file or files that are to be purged from the SEAS library of user files.

SEAS System Prompt

ENTER MASTER QUEUE RECORD NUMBER OR "ALL" OR "DONE": [?]

User Selection	User Response	Next Step
8.2.1 Purge individual file (NNNN = File "Record No." see function "DF")	NNNN	8.2.6
8.2.2 Purge all user files	ALL	8.2.6
8.2.3 Terminate "PF" function	DONE	4.0
8.2.4 Request assistance (...Help message prints...)	?	8.2
8.2.5 Invalid entry (...Error message prints...)		8.2

8.2.6 User file(s) is purged, individual message(s) print:

....."MASTER QUEUE" ENTRY NO. XXXX HAS BEEN PURGED.....

TO CONTINUE RETURN TO PROGRAM STEP 8.2.1

9.0 FUNCTION "ES" - EXIT SEAS

The User has just elected to terminate execution of the SEAS program.

9.1 Terminate Program

The following message prints at the terminal to notify the user that SEAS has been terminated:

----- EXIT SEAS -----

From this point, a user may either reexecute SEAS (paragraph 2.4), run a different program, or terminate this session (Step 9.2).

9.2 Terminate Computer Session

The User is now ready to perform the standard user log-off procedures.

The following steps are performed in the order listed:

9.2.1 Enter the system terminator message ("BYE").
9.2.2 (A summary of system resource usage prints).
9.2.3 Disconnect the telephone receiver from the terminal.
9.2.4 Turn the terminal power switch to the "OFF" position.

10.0 SEAS REPORT NO. 101 - "BASIC TABULATION OF WAVE PARAMETERS"

10.1 Report Description

This report is the most basic of the SEAS reports and is referenced in SEAS as Report No. 101. As with most SEAS reports, it may be displayed at the user's terminal (i.e. "soft copy") or it may be printed directly to a line printer (i.e. "hard copy"). The "soft copy" version is produced interactively, whereas, the "hard copy" is prepared by a batch run that is initiated by the interactive SEAS processor.

Report No. 101 is simply a formatted listing of user selected wave data. Included are H , T , and D for sea conditions, as well as the corresponding same three parameters for swell conditions and H_s , T_p , and D_m for combined sea and swell conditions. Data are listed as a separate report with a page break between reports (refer to the discussion in paragraph 7.7 of this manual). A title page will precede the "hard copy" (line printer) version that identifies the report and lists the data subset used to prepare it (this includes: (a) station ID's, (b) time frames, and (c) include/exclude selections). The format of the "soft copy" report is restricted by physical limitations of the terminal print device (character printer/video screen). For "soft copy" output, the title page is suppressed as are the heading lines that contain date, page number, and report name and number. The rest of the report, containing the wave data, remains unchanged.

> Note: Report No. 101 is less than 80 columns in width and is suitable for display at all user terminals.

See Appendix B for a sample of Report No. 101. Report content should be self-explanatory.

10.2 Methods of Analysis

Not applicable for this report; no calculations performed.

10.3 Interpretation of Output

When wave hindcasts for sea or swell predict very low or negligible significant wave heights, zero values are placed simultaneously in the height, period, and direction columns. However, occasionally a zero height is tabled versus nonzero values for period and direction. This is a computational artifact of the hindcast procedures and should be interpreted as such.

11.0 SEAS REPORT NO. 102 - "TIME PLOT OF WAVE PARAMETERS"

11.1 Report Description

Report No. 102 is used to provide a graphic interpretation of wave data. It has identical display capabilities ("soft copy"/"hard copy") as SEAS Report No. 101.

Report No. 102 is a printer plot of user extracted wave data and presents a "side-by-side" graph of three interrelated wave parameters: H , T , and D . Data are listed in time sequence by station. When multiple stations are processed, each station generates a separate report set that is similar to Report No. 101. Suppression of the title page and selected report heading lines on the "soft copy" display is likewise similar.

Unlike Report No. 101, this report does not present all available wave data. The user's data file contains wave readings (i.e., H , T , and D) for both sea waves and swell waves. An additional set of "combined" sea and swell readings may be computed from individual sea and swell readings. A user has the option to display either sea, swell, or combined wave readings on a single report (multiple selections require separate report processes). This choice is made at program Step 7.4, and the report will be properly entitled to identify those data that are presented.

> Note: Report No. 102 is less than 72 columns in width and is suitable for display at all user terminals.

See Appendix B for a sample of Report No. 102, which contains combined sea and swell wave data.

11.2 Methods of Analysis

Standard statistical methods are used to compute: Minimum value (XMIN), maximum value (XMAX), average value (XBAR), and standard deviation value (STDEV). Sea data and swell data (i.e., wave H , T , and D) are extracted directly from the SEAS data base. Combined wave data are computed as discussed in Section 7.4.

The computations for height and period are based on the following:

XMIN = smallest value during time interval

XMAX = largest value during time interval

XBAR = arithmetic average of values during time interval

STDEV = standard deviation of values in time interval

For directional statistics, XMIN and XMAX have the same definition as above. However, the mean direction is obtained from:

$$\text{Average cosine} = \frac{1}{n} \sum_{i=1}^{n} \cos \theta_1$$

$$\text{Average sine} = \frac{1}{n} \sum_{i=1}^{n} \sin \theta_1$$

XBAR = arctan (average sine/average cosine)

STDEV = 1 - (average sine)^2 + (average cosine)^2

11.3 Interpretation of Output

The graphs provide visual representations of the time variation of the combined wave properties. The curves range from minimum to maximum values for the combined wave property. Although no scale for value is given, the general position can be used to approximate actual value. The numerical value can be read from Report No. 101.

12.0 SEAS REPORT NO. 103 - "PERCENT OCCURRENCE TABLES OF WAVE HEIGHT, PERIOD, AND DIRECTION"

12.1 Report Description

Report No. 103 display capabilities ("soft copy"/"hard copy") are identical with SEAS Report No. 101, except that Report No. 103 produces output greater than 72 columns in width. If listed at a terminal, only 72 columns of text will be displayed unless an appropriate print device is available (see input Step 3.2). The report prints in its entirety on the WES printer (or JOUT queue).

Report No. 103 is a set of percent occurrence tables (POT) of significant waves in H and T ranges by D . H is presented in columnar format. T is presented in row order. Report No. 103 generates a separate table for each 22.5-degree increment, plus a table which includes all possible wave directions (0.0 - 360.0 degrees azimuth) for a total of 17 tables for each station specified.

The POT are computed from either sea, swell, or "combined" sea and swell wave parameters. These parameters (H , T , and D) are obtained directly from the user's data file for both sea and swell, and the "combined" parameters (H_s , T_p , and D_m) are computed. A user selects which data to be used at program Step 7.4, and the report is appropriately entitled to identify that selection.

Note: Because of the format of this report, a 132-column print device must be available for terminal ("soft copy") output. The user should also make SEAS aware of this capability at program Step 3.2. On terminals without this capability, only 72 columns of the report will be displayed (the rightmost columns are truncated).

See Appendix B for a sample of Report No. 103, which contains combined sea and swell wave data.

12.2 Methods of Analysis

Not applicable for this report; report content self-explanatory.

12.3 Interpretation of Output

The percentages in the table are multiplied by 100 to display greater precision. Thus, a table value of 967 means 9.67 percent for that particular combination of wave height and period. In addition, percentage frequencies, again multiplied by 100, are tabled at the right side of the report for each height category.

Time-sequence interrelations are lost in frequency tabulations; thus, "persistence" questions cannot be addressed from such reports. However, problems related to the overall fraction of time are well represented.

13.0 SEAS REPORT NO. 104 - "HISTOGRAM OF WAVE HEIGHT"

13.1 Report Description

Report No. 104 display capabilities ("soft copy"/"hard copy") are identical with SEAS Report No. 101, except that Report No. 104 will produce output greater than 72 columns in width. If printed at a terminal, only 72 columns of text will be displayed unless an appropriate print device is available (see input Step 3.2). The report prints in its entirety at the WES printer (or JOUT queue).

Report No. 104 is a vertical histogram/bar chart of the percent occurrence of wave height at predefined intervals. Percentages are graduated along the y-axis from 0 through 50 percent, in 1-percent increments. The x-axis reflects wave height and is graduated from 1 through 15 metre, in 1-meter increments (0.5-metre increments for Phase III data). Frequency counts are also displayed below the x-axis for each height interval.

There is a marked similarity between Report Nos. 104 through 106. The same program is used to generate all three, the difference being in the data that are reported: (a) Report No. 104 displays wave height; (b) Report No. 105 displays wave period; and (c) Report No. 106 displays wave direction. For all of these reports, a user also has the option of using either sea, swell, or combined wave data. This selection of sea, swell, or combined wave data is made at program Step 7.4. The report will be appropriately entitled to identify the selection made.

Note: Because of the format of this report, a 132-column print device must be available for terminal ("soft copy") output. The user should also make SEAS aware of the 132-column print device capability at program Step 3.2. On terminals without this printing device capability, only 72 columns of the report text will be displayed (the rightmost columns are truncated).

See Appendix B for a sample of Report No. 104, which contains combined sea and swell wave data.

13.2 Methods of Analysis

Not applicable for this report; report content self-explanatory.

13.3 Interpretation of Output

The histogram provides information concerning the frequency with which various sea, swell, or combined heights occur. Time-sequence relations cannot be deduced from such figures.

14.0 SEAS REPORT NO. 105 - "HISTOGRAM OF WAVE PERIOD"

14.1 Report Description

Report No. 105 display capabilities ("soft copy"/"hard copy") are identical with SEAS Report No. 101, except that Report No. 105 will produce output greater than 72 columns in width. If printed at a terminal, only 72 columns of text will be displayed unless an appropriate print device is available (see input Step 3.2). The report prints in its entirety at the WES printer (or JOUT queue).

Report No. 105 is a vertical histogram/bar chart of the percent occurrence of wave periods at predefined intervals. Percentages are graduated along the y-axis from 1 through 50 percent, in 1 percent increments. The x-axis represents the wave period and is graduated from 1 through 25 seconds, in 1-second increments. Frequency counts are displayed below the x-axis for each time interval.

See description of Report No. 104 for a discussion of similarities between Report Nos. 104 through 106.

> Note: Because of the format of this report, a 132-column print device must be available for terminal ("soft copy") output. The user should also make SEAS aware of this capability at program Step 3.2. On terminals without this capability, only 72 columns of the report text will be displayed (the rightmost columns are truncated).

See Appendix B for a sample of Report No. 105 containing combined sea and swell wave data.

14.2 Methods of Analysis

Not applicable for this report; report content self-explanatory.

14.3 Interpretation of Output

Zero periods in the histogram indicate the negligible wave.

The histogram provides a generalized description of the percent occurrence of peak wave periods for sea, swell, or the combined sea and swell data in the prescribed interval. The percent occurrences are based on the total number of observations whether they are finite or not. The difference between 100 percent and the total percent can be considered as "calm" wave conditions.

15.0 SEAS REPORT NO. 106 - "HISTOGRAM OF WAVE DIRECTION"

15.1 Report Description

Report No. 106 display capabilities ("soft copy"/"hard copy") are identical with SEAS Report No. 101, except that Report No. 106 will produce output greater than 72 columns in width. If printed at a terminal, only 72 columns of text will be displayed unless an appropriate print device is available (see input Step 3.2). The report prints in its entirety at the WES printer (or JOUT queue).

Report No. 106 is a vertical histogram/bar chart of the percent occurrence of predefined intervals of significant wave direction of origin. The percentages are graduated along the y-axis from 1 through 50 percent in 1-percent increments. The x-axis presents significant wave direction of origin and is graduated from 1 through 360 degrees, in 22.5-degree increments. Frequency counts are displayed below the x-axis for each degree range.

See description of Report No. 104 for a discussion of similarities between Reports Nos. 104 through 106.

> Note: Because of the format of this report, a 132-column print device must be available for terminal ("soft copy") output. The user should also make SEAS aware of this capability at program Step 3.2. On terminals without this capability, only 72 columns of the report text will be displayed (the rightmost columns are truncated).

See Appendix B for a sample of Report No. 106 which contains the combined sea and swell wave data.

15.2 Methods of Analysis

Not applicable for this report; report content is self-explanatory.

15.3 Interpretation of Output

The histogram is based on mean direction of wave propagation of the sea, swell, or the combined sea and swell. The percent occurrences are based on the total number of observations in the prescribed interval. The calm wave conditions are counted as an observation, but the wave direction (0 degree) is not categorized. Both Phase I and Phase II wave directional data are distributed from 0 - 360 degrees, whereas the Phase III wave directional data are bounded from 0 - 180 degrees relative to the shoreline.

16.0 SEAS REPORT NO. 107 - "SUMMARY STATISTICS OF SELECTED WAVE DATA"

16.1 Report Description

Report No. 107 display capabilities ("soft copy"/"hard copy") are identical with SEAS Report No. 101. Output lines are less than 80 characters in length.

Report No. 107 is a report set consisting of the following:

a. Mean H_s table by month and year.
b. Largest table by month and year.
c. Statistics for specified time interval.

These tables summarize the mean and largest H_s hindcast for the period extracted to a SEAS data file by user. Precomputed Report No. 830 contains this same information for the entire 20-year data set for a particular station. However, precomputed tables are not yet available for all stations.

The tables can be used as a quick reference in determining gross estimates of the wave climate of an area. Because of extreme variations in wave heights, the mean H_s value is of little use beyond gross estimates. The largest H_s value provides an idea of what extreme significant wave heights have occurred.

16.2 Use of Tables

To determine the mean H_s at Pacific Phase II Station 20 for January 1956, simply read the value in the specified column and row Appendix B, page B23. The mean H_s for 1956 is given in the MEAN column opposite 1956. The mean H_s for all January's is given in the MEAN row under JAN. For example:

a. The mean H_s for JAN 1956 = 3.3 metres.
b. The mean H_s for 1956 = 2.6 metres.

c. The mean H_s for all JAN's = 3.6 metres.

The largest H_s table can be read in a similar fashion (Appendix B, page B24), and by scanning the columns and rows, additional information can be determined:

a. The largest H_s for JAN 1956 = 4.9 metres.

b. The largest H_s for 1956 = 6.9 metres.

c. The largest H_s for all JAN's = 9.4 metres.

Finally, a summary of the data for the selected time interval and station provides the following values:

a. Mean H_s and T_p .

b. Most frequent direction band.

c. Standard deviation for H_s and T_p .

d. Largest H_s with associated T_p , D_m , and time of occurrence.

17.0 SEAS REPORT NO. 201 - "ESTIMATED PROBABILITIES FOR MAXIMUM WAVE HEIGHT AND ASSOCIATED PERIOD"

17.1 Report Description

Report No. 201 is a collective set of six reports. This report has the same display capabilities ("soft copy"/"hard copy") as Report No. 101, except that some of the output is greater than 72 columns wide. If the reports are sent to a user's terminal ("soft copy"), only 72 columns will be displayed unless an appropriate print device is available (see input Step 3.2). When the reports are sent to the WES printer (or JOUT queue), all 132 columns will be printed. Unlike Report Nos. 101 through 106, processing of multiple stations will not result in separate report parts (all output will be continuous).

The six reports included in this set are as follows:

a. "Cumulative Probability Table" - This table contains cumulative probabilities for wave periods associated with the given maximum wave height, stated in units of 1,000. Wave period is calibrated from 3 through 15 seconds in 1-second increments and height ranges from 41 through 90 feet in 1-foot intervals.

b. "Joint Probability Table" - This table contains joint probabilities for maximum wave height and the associated wave period per 10,000 units.

c. "Histogram of Wave Height" - This is a horizontally formatted histogram of the estimated probabilities for maximum occurring wave height. Frequency counts are provided for each interval. Note: This is similar to the output of Report No. 104, though rotated 90 degrees (horizontal versus vertical).

d. "Histogram of Wave Period" - Similar to item c above, except that it contains wave period data. Frequency counts are also provided.

e. "Wave Height Statistical Summary" - A statistical summary table of estimated probabilities for maximum wave height (includes: mean, standard deviation, variance, skewness, kurtosis, mode, and quantiles of the frequency distribution).

f. "Wave Period Statistical Summary" - Same as item e above, except that it contains wave period data.

See Appendix B for a sample of Report No. 201.

17.2 Methods of Analysis

Significant wave heights, spectral peak periods, and principal direction of wave travel are climatological summary properties characterizing a given 3-hour period. During that time interval, a variety of different individual wave heights and periods will occur. The wave properties present occur according to a joint probability law for height and period, which depends on the significant height and spectral peak period. This law has been the subject of substantial research, and some controversey, over the last decade (Longuet-Higgins 1975; Cavanie, Arhan, and Ezraty 1976; Goda 1978; and Chen, Borgman, and Yfantis 1979). The joint probability law for individual wave height and period may be used to develop a joint probability law for the single largest wave height that will occur during the 3-hour period and the wave period that it will have. Furthermore, these 3-hour probabilities may be combined, according to the statistics of extremes, to derive the joint probabilities for the height of the single largest wave and its associated period that will occur over an extended time interval consisting of many 3-hour intervals. The derivation allows significant heights and spectral peak periods to vary for each 3-hour interval.

Report No. 201 summarizes the various probabilities given by the derived formula for the maximum individual wave height and its associated period.

A detailed derivation of the formulas used is given in Chen, Borgman, and Yfantis (1979) and Borgman (1981). Basically, a Rayleigh wave-height distribution is combined with a conditional probability for period, given the height, which is normally distributed. This is the essential structure of the Longuet-Higgins height-period probability law (1975). Empirical modifications are introduced from Chen, Borgman, and Yfantis (1979) in which the mean period of $0.85T_p$ for moderate and larger waves, and the standard deviation of period for waves with height h is $0.15T_pH_sh$. In these formulas, T_p denotes the spectral

peak period and H_s is the significant wave height.

The probability law for the maximum wave height and associated period for an extended time interval, where significant wave height and spectral peak period are functions of time, is derived by Borgman (1981, p. 2). The complex formula depends on the joint probability law for individual wave heights and periods. The primary assumption is that waves in a time sequence behave almost independently of each other; that is, the wave-to-wave interaction is fairly small.

17.3 Interpretation of Output

Report No. 201 includes three tables and two histograms. The first table contains the probability density function for maximum wave height (PDF) and the cumulative distribution function for maximum wave height (CDF). This table also gives the cumulative distribution function for wave periods, given the maximum wave height as a specified value.

The second tables gives joint frequencies of maximum height and period for 10,000 time intervals of the total length analyzed. The table values may be divided by 10,000 to obtain fractions of such intervals that would produce a maximum wave height in that category. Alternately, the tables may be divided by 100 to compute the predicted percent of the time the maximum wave and associated period that occur in an interval with the specified significant height and spectral peak-period time-history would fall in that (H , T) category. Thus, if the table entry is 102 for H = 64 feet and T = 8 seconds , then 1.02 percent of many intervals, each having the specified H_s and T_p time-history, would have a maximum wave height of 64 feet and an associated period of 8 seconds.

The two histograms give graphical representation of these same frequencies individually for maximum wave height and maximum period. Finally, various statistics and quantiles are reported for each random quantity.

The results shown in this report must be interpreted cautiously and with careful engineering judgment. The report presents a theoretical analysis based on current knowledge of the statistics of extreme wave heights. The report demonstrates the consequences and implications of certain theories.

It is important to recognize the limitations of the computations. The most important limitation is that breaking wave limits in shallow water have not been included in the calculations. Thus, unreasonably large waves may be predicted in shallow-water data. It is recommended that a breaking wave limit be determined for the site in question as based on water depth, sea floor slope, and wave period. This can be estimated from published data and articles, although the limits given show considerable scatter. The selected breaker limit should then be drawn on the maximum height and associated period joint frequency table. Heights above the lines are impossible. The frequencies for heights and periods below the breaker line should then be renormed (divided by an appropriate constant) so that the frequencies for "possible" waves add to 1.

The other limit on the validity of the results is related to the assumptions in the derivation of the theory. If wave-to-wave correlation is not relatively small or if conditions are present that make the Longuet-Higgins height-period probability law not appropriate, then the report result will not be reliable.

In summary, the report gives consequences of proposed theories that may be used cautiously in engineering evaluations. However, judgment and care must be used in the interpretations.

18.0 SEAS REPORT NO. 301 - "ESTIMATED PROBABILITIES FOR INDIVIDUAL WAVE HEIGHT AND ASSOCIATED PERIOD"

18.1 Report Description

Report No. 301 is a collective set of five reports. This set is similar in format to Report No. 201 (Set), and has the same display capabilities ("soft copy"/"hard copy") as Report No. 101. Some report output will exceed 72 columns in width and can only be printed at certain user terminals ("soft copy" format). As with Report No. 201, wave data for multiple stations are combined to produce a single report set (Report Nos. 101 through 106 generate separate reports for each station referenced).

The five reports included in this set are as follows:

a. "Joint Probability Table" - This is a table of cumulative probabilities for individual wave heights and associated periods, stated precisely to units of one thousandth. The wave period scale is calibrated from 1 through 13 seconds in 1-second increments; wave height ranges from 4 through 45 feet in 1-foot increments.

b. "Histogram of Wave Height" - This is a horizontally formatted single variable histogram of estimated individual wave height. Wave height is scaled from 0.5 to 45.5 feet in intervals of 3.0 feet. Frequency counts are provided for each interval. Note: This is similar to the output of Report No. 104, though it is rotated 90 degrees (horizontal versus vertical).

c. "Histogram of Wave Period" - Similar to item b above, except that it contains wave period data. It is scaled in 1.0-second increments from 0.5 to 13.5 seconds. Frequency counts are also provided.

d. "Wave Height Statistical Summary" - A statistical summary table of estimated probabilities for maximum wave height (includes: mean, standard deviation, variance, skewness, kurtosis, mode, and quantiles of the frequency distribution).

e. "Wave Period Statistical Summary" - Same as item d above, except that it contains wave period data.

See Appendix B for a sample of Report No. 301 which contains data for Pacific Ocean Station P2010.

18.2 Methods of Analysis

The wave parameters reported in the SEAS data sets are climatological characterizations of the wave conditions during a given 3-hour time interval. A variety of individual waves, each with its own height and period, will occur during that 3-hour interval. The probability law for individual wave heights and periods has received substantial study during the last few years (Longuet-Higgins 1975; Cavanie, Arhan, and Ezraty 1976; Goda 1978; and Chen, Borgman, and Yfantis 1979). The joint probability law for height and period may be used to develop theoretical frequencies for the occurrence of different combinations of height and period values.

A detailed derivation of the formulas used is given by Chen, Borgman, and Yfantis (1979). Fundamentally, a Rayleigh wave-height distribution is combined with a conditional probability for period, given height, which is normally distributed. This is the essential structure of the formula proposed by Longuet-Higgins (1976). Empirical modifications are introduced from the studies by Chen, Borgman, and Yfantis (1979) in which the mean period is $0.85\ T_p$ for moderate and larger waves, and the standard deviation of period for waves with height h is $0.15\ T_p H_s / h$. Here T_p and H_s are the spectral peak period and significant wave height, respectively.

18.3 Interpretation of Output

The report includes two tables and two histograms. The first table lists the number of waves that would theoretically occur in each category if 10,000 waves were to occur. The table entries may be divided by 10,000 to yield the relative frequencies with which the individual waves would fall in that category. This is stated with

respect to the population of individual waves arising during the time-history of significant wave height and spectral peak period submitted for analysis for the report.

The two histograms and the remaining table summarize the frequencies and statistics for height and period separately.

The results given by the report require careful interpretation. The report presents a theoretical analysis based on current understanding of wave probability laws.

Several limitations must be considered in the engineering use of the reports. The most important of these is that the breaking wave limit on waves has not been introduced. Since the exact curve appropriate for a given water depth, period, and sea floor slope and bathymetry is itself a matter of research and some conjecture, it was not possible to include a curve in the report calculations. Rather, it is recommended that a curve be selected from a judicious review of published articles on the breaking limit. The selected breaker limit should then be drawn on the height-period frequency table. Heights above the line are assumed to be impossible. Consequently, the frequencies for heights and periods should be renormed (divided by an appropriate constant) so that the frequencies for "possible" waves add to 1.

The other limit on the validity of the result is related to the validity of the Longuet-Higgins height-period probability law. Any conditions which invalidate that probability law will indicate that the report results are not correct.

19.0 PRECOMPUTED SEAS REPORTS

A set of precomputed reports, prepared using the full 20-year data set for each individual station is available. These reports are stored in disc-resident files for rapid access. Descriptions of available precomputed reports follow.

Note that precomputed reports are not available at this time for all stations included in the SEAS system. A warning message, similar to the following, will indicate that the station which you have chosen does not have available the particular precomputed report requested:

*****REPORT 830 NOT YET AVAILABLE FOR STATION A'00'*****

19.1 SEAS REPORT NO. 810 - "PERCENT OCCURRENCE TABLES"

19.1.1 Report Description

Display capabilities ("soft copy"/"hard copy") for Report No. 810 are identical with SEAS Report No. 101. Output lines are less than 80 characters in length.

This precomputed report tabulates, for a chosen station, the percent occurrence of H_s and T_p by D_m for a total of 16 azimuth direction bands and a summary table for all directions. The entire 20-year data set for each station was used in calculating the tables.

The T_p ranges are in 2-second intervals (except for the first increment where the range is from 0 to 2.9 seconds and the last increment where the range is all periods greater than 19.0 seconds. Due to a change in data processing methods, the format of the percent occurrence tables (POT) for the Pacific stations is slightly different from the Atlantic POT. For the Pacific POT, the period intervals are determined by mid-band frequencies and band ranges which are set in the Wave Information Study (WIS) numerical wave model. The H_s ranges are in 1-metre increments. The D_m ranges are in 22.5-degree intervals. Values in the direction tables represent the percent of the 20 years that waves occur from the specified direction bands for the indicated H_s and T_p ranges. The values have been multiplied by 1,000 to allow more accuracy with less printing space. Summations are provided for each table, containing the following information for the specified direction range:

a. The average H_s .

b. The largest H_s .

c. The percent of waves occurring in the specified direction range

The all-directions (last) table gives the percent occurrence of significant waves within specified height and period ranges coming from all

directions for 20 years for the indicated station. Values in the all-directions table are multiplied by 100. The summary parameters for the all-directions table are derived from all preceding directional tables for the full 20 years. There are always 58,440 cases analyzed, but not all cases resulted in finite wave conditions. If a "calm" condition exists in the data set, both sea and swell significant wave heights must be equivalent to zero. Therefore, the total sum for all occurrences at a given station may not be 100 percent, and that percentage can be considered as times of calm wave conditions. The angle class percentage found in each angle class table has been rounded to the nearest 0.1 percent, which causes a slight difference in the total percent in the all-directions table and in summing the percent occurrence found in the individual angle class table.

19.1.2 Example

In order to find the number of hours that waves between 3.0 and 3.9 metres and 7.0 to 8.9 seconds are expected to occur for 22.5 degrees about 22.5 degrees for Atlantic Phase II Station 44 for the 20-year interval, the value read in the table for the specified station, direction of wave propagation, height, and period should first be divided by 1,000 which for this example yields 0.049 percent (Appendix B, page B37). Then 0.049 is divided by 100 to give the frequency and multiplied by the number of hours for the 20-year period (approximately 8,766 hours per year) to yield the number of hours that the specified wave is expected to occur. The simple conversion process is:

$$\frac{\text{Value read in table}}{1{,}000} \div 100 \times \text{number of hours in time interval} = \text{number of hours specified wave is expected to occur}$$

$$\frac{49}{1{,}000} \div 100 \times 175{,}320 = 85.9 \text{ hours}$$

The all-directions tables can be used in a similar fashion. To find the number of hours waves between 3.0 and 3.9 metres are expected to occur within a year for Station 44 for all directions and periods, divide the

value in the total column for the specified H_s range by 100, which yields a percent of 6.06 (Appendix B, page B38). Divide 6.06 by 100 to get the frequency, then multiply by the number of hours in one year; that is:

$$\frac{606}{100} \div 100 \times 8,766 = 531 \text{ hours}$$

19.2 SEAS REPORT NO. 820 - "WAVE HEIGHT RETURN PERIOD TABLES"

19.2.1 Report Description

Display capabilities ("soft copy"/"hard copy") for SEAS Report No. 820 are identical to those for SEAS Report No. 101. Output lines are less than 80 characters in length.

These precomputed tables were derived using the 20-year data set contained in SEAS. The method used for calculating the return period tables is described in detail in Corson and Tracy (1985). These tables contain the medians of the 50-, 20-, 10-, and 5-year wave heights. Also, the 0.25 and 0.75 fractiles are provided to indicate possible variation in the extreme estimates.

19.2.2 Use of Tables

Values of extreme wave heights for median, 0.75 fractile, and 0.25 fractile estimates of 50-, 20-, 10-, and 5-year return periods can simply be read from the table for the selected station.

19.2.3 Example

Using the example given on page B39 of Appendix B, for Pacific Phase I Station 8, the median 50-year wave height estimate is 13.4 metres; and the estimates of the 50-year wave heights representing the 0.75 and 0.25 fractiles are 14.4 metres and 12.7 metres, respectively. The 0.75 fractile indicates that 75 percent of the 50-year wave heights should (based on the assumed probability density function) be at or below 14.4 metres.

19.3 SEAS REPORT NO. 830 - "20-YEAR SUMMARY STATISTICS"

19.3.1 Report Description

Display capabilities ("soft copy"/"hard copy") for Report No. 830 are identical with SEAS Report No. 101. Output lines are less than 80 characters in length.

This precomputed report is identical in format to Report No. 107. Tables of largest and mean H_s and summary statistics have been computed using the entire 20-year data set contained in the SEAS system, and are available for printing at the user's terminal or on a batch printer without additional processing.

19.3.2 Use of Tables

SEAS Report No. 107 (Appendix A, Section 16) shows examples of the use of tables in this report. Examples of this report are shown on pages B40 and B41 of Appendix B.

20.0 EXTERNAL SEAS LIBRARY

A library of routines that are external to the SEAS system has also been established. Unlike the previously described internal SEAS reports, these routines are initiated by special run commands outside the primary SEAS system.

20.1 SEAS PROGRAM NO. 901 - "STATION DICTIONARY FILE LIST"

20.1.1 Program Description

This program produces a formatted listing of the SEAS Station Dictionary File and can be used to maintain a current listing of valid SEAS stations. File contents are listed in order by station with page breaks by location and phase. Each page heading includes location and phase information.

To initiate this program, type the following command:

```
FRN ROHHSEAS/STALIST,R
```

See Appendix B (pages B42-B74) for a sample execution of this program.

20.1.2 Methods of Analysis

Not applicable for this program; no calculations performed.

20.1.3 Interpretation of Output

Not applicable for this program; program output is self-explanatory.

20.2 SEAS PROGRAM NO. 902 - "SHALLOW WATER WAVE TRANSFORMATION (WAVETRAN)"

20.2.1 Program Description

This program is identical to the finite water-depth wave transformation used in the nearshore (Phase III) Atlantic Coast Wave Information Study (ACWIS). This interactive version of the transformation program provides the added capability of calculating a variable water-depth wave transformation at a particular site for a specific design or planning consideration.

20.2.2 Methods of Analysis

For a detailed discussion of the methods employed in the shallow-water wave transformation program, see Jensen (1983a).

20.2.3 Use of Program

To initiate the question/answer sequence of this program, type the following command:

FRN ROHHSEAS/WAVETRAN,R

Program input requirements include:

a. Data file containing sea and swell parameter data for desired time interval (i.e., SEAS user data file for nearest Phase II station)

b. Phillips constant (may be left at 0.0081 if desired)

c. Water depth (m) into which transformation is to be made

d. Sheltering information (NT, KT, KT2)

NT = 0 - no sheltering
1 - 1-sided sheltering
2 - 2-sided sheltering

One-Sided Sheltering:

KT	Sheltering Angles,* deg
1	0 - 10
2	0 - 20
3	0 - 30
4	0 - 40

KT	Sheltering Angles,* deg
5	0 - 50
6	0 - 60
7	0 - 70
8	0 - 80
9	0 - 90
10	80 - 180
11	90 - 180
12	100 - 180
13	110 - 180
14	120 - 180
15	130 - 180
16	140 - 180
17	150 - 180
18	160 - 180
19	170 - 180

* All relative to the shoreline orientation as shown in Figure D-4, Appendix D, page D12

Two-Sided Sheltering:

Input identical values as noted above, making certain that the 0-N deg is input first.

For example:

two-sided sheltering 0-20 deg; 160-180 deg

NT = 2

KT = 2

KT2 = 18

See Appendix B (pages B75-B77) for a sample execution of this program.

APPENDIX B: SAMPLE REPORTS

```
*RUN ROHMSEAS BATCH,R
***** WELCOME TO SEAS *****

***EXTENSIVE CHANGES HAVE BEEN MADE TO ADD NEW
***CAPABILITIES TO SEAS.  DO YOU WANT INFORMATION
***ON CHANGES (Y OR N)?
=N

DOES YOUR TERMINAL HAVE 132-CHARACTER PRINT LINE  Y OR N)?
=Y
DO YOU WANT NEW USER INFO (Y OR N)?
=Y
```

```
**********************    S E A S    S Y S T E M    **********************
*                                                                         *
* YOU HAVE ENTERED THE SEAS SYSTEM PROCESSOR.  BY ANSWERING A SERIES      *
* OF PROMPTS, YOU MAY ACCESS WAVE PARAMETER DATA FROM A CURRENT DATA      *
* BASE CONTAINING A 20-YEAR SAMPLING FOR 252 ATLANTIC COAST STATIONS      *
* AND 222 PACIFIC COAST STATIONS (1956-1975):                             *
*      ATLANTIC PHASE I    - STATIONS A1001 - A1013                       *
*      ATLANTIC PHASE II   - STATIONS A2001 - A2073                       *
*      ATLANTIC PHASE III  - STATIONS A3001 - A3166                       *
*      PACIFIC PHASE I     -  STATIONS P1001 - P1035                      *
*      PACIFIC PHASE II    -  STATIONS P2001 - P2053                      *
*      PACIFIC PHASE III   -  STATIONS P3001 - P3104                      *
* THE DATA MAY BE USED TO PREPARE ANY OF THE FOLLOWING REPORTS,           *
* WITH OUTPUT DIRECTED TO EITHER A TERMINAL OR A PRINTER.                 *
*                                                                         *
*  REPORT #101 - BASIC TABULATION OF WAVE PARAMETERS                      *
*  REPORT #102 - TIME PLOT(S) OF WAVE PARAMETERS                          *
*  REPORT #103 - PERCENT OCCURRENCE TABLES FOR WAVE HT, PD, DIR           *
*  REPORT #104 - HISTOGRAM OF WAVE HEIGHT                                 *
*  REPORT #105 - HISTOGRAM OF WAVE PERIOD                                 *
*  REPORT #106 - HISTOGRAM OF WAVE DIRECTION                              *
*  REPORT #107 - SUMMARY STATISTICS OF SELECTED WAVE DATA                 *
*  REPORT #201 - ESTIM. PROBABILITIES FOR MAX. WAVE HT AND ASSOC PD       *
*  REPORT #301 - ESTIM. PROBABILITIES FOR INDIVIDUAL WAVE HT AND PD       *
*  REPORT #810 - PERCENT OCCURRENCE TABLES ('PRE-COMPUTED' REPORT         *
*           ATLANTIC PHASE II STATIONS 1-73                               *
*           PACIFIC PHASE I STATIONS 1-35                                 *
*           PACIFIC PHASE II STATIONS 1-53 ONLY                           *
*  REPORT #820 - WAVE RETURN PERIOD TABLES ('PRE-COMPUTED' REPORT)        *
*           ATLANTIC PHASE II STATIONS 1-73                               *
*           PACIFIC PHASE I STATIONS 1-35                                 *
*           PACIFIC PHASE II STATIONS 1-53 ONLY                           *
*  REPORT #830 - 20-YEAR PERIOD STATISTICS ('PRE-COMPUTED' REPORT)        *
*           PACIFIC PHASE I STATIONS 1-35                                 *
*           PACIFIC PHASE II STATIONS 1-53 ONLY                           *
*                                                                         *
* NOTE: AT ANY PROMPT POSITION, THE PROGRAM CAN BE TERMINATED BY THE      *
*       ENTRY OF THE WORD 'EXIT'.  WHEREVER DENOTED BY A SYMBOL [?],      *
*       THE CHARACTER '?' CAN BE ENTERED TO REQUEST ASSISTANCE.           *
*                                                                         *
*********  DEPRESS THE RETURN KEY TO CONTINUE PROCESSING  *********
```

```
ENTER USERNAME (MAXIMUM 9 CHARACTERS):                                  [?]
=RAGSDALE

ENTER 1-DIGIT REPORT OUTPUT CODE (1=WES PRINTER; 2=JOUT QUEUE):         [?]
=?

-------------------------------------------------------------------------
OPTION 1 DIRECTS ALL BATCH (HARD COPY) REPORT OUTPUT IMMEDIATELY TO
THE WES MAIN SITE PRINTER.
OPTION 2 ALLOWS THE USER TO:
    A) PRINT REPORTS AT HIS OWN WIDE-CARRIAGE INTERACTIVE TERMINAL,
    B) DIRECT REPORTS TO WES MAIN SITE PRINTER, OR
    C) DIRECT REPORTS TO HIS ADP CENTER REMOTE BATCH TERMINAL.
-------------------------------------------------------------------[012]

ENTER 1-DIGIT REPORT OUTPUT CODE (1=WES PRINTER; 2=JOUT QUEUE):         [?]
=2

ENTER 2 CHARACTER FUNCTION CODE (DF,ED,PR,PF,ES):                       [?]
=?

-------------------------------------------------------------------------
THE SEAS SYSTEM CURRENTLY SUPPORTS 5 FUNCTIONS, EITHER OF WHICH MAY BE
SELECTED BY ENTERING A 2-WORD CATCH PHRASE OR MERELY THE 1ST 2 LETTERS
OF THE CATCH PHRASE, AS INDICATED BELOW:

   (1)  DISPLAY FILES    - THIS FUNCTION ALLOWS THE USER TO CREATE A
        =======  =====      LISTING OF CURRENTLY ASSIGNED FILES OR TO
                            DETAIL THE CONTENTS OF DATA EXTRACT FILES;
   (2)  EXTRACT DATA     - THIS FUNCTION INVOKES A BATCH PROCESS THAT
        =======  ===        LOADS WAVE DATA FROM TAPE TO DISK;
   (3)  PROCESS REPORT   - THIS FUNCTION ALLOWS THE USER TO PROCESS A
        =======  ======     'CUSTOM' REPORT(S) FROM USER EXTRACTED DATA
                            OR DISPLAY 'PRE-COMPUTED' SYSTEM REPORT(S);
   (4)  PURGE FILES      - THIS FUNCTION ALLOWS A USER TO PURGE FILES
        =====  =====      THAT ARE NO LONGER NEEDED;
   (5)  EXIT SEAS        - THIS ENTRY, SIMILAR TO 'EXIT', IS USED FOR
        ====  ====         PROGRAM TERMINATION.
-------------------------------------------------------------------[002]

ENTER 2 CHARACTER FUNCTION CODE (DF,ED,PR,PF,ES):                       [?]
=ED

ENTER 1 CHARACTER DATA SELECTION CODE (I=INCLUDE,E=EXCLUDE,D=DONE)      [?]
=?
```

```
------------------------------------------------------------------------
WAVE DATA TO BE EXTRACTED FROM TAPE TO DISK PRIOR TO REPORT PROCESSING
WILL BE DENOTED BY A SERIES OF ONE OR MORE ENTRY SETS, EACH CONTAINING
REFERENCE TO STATION ID (EX. A1001) AND TIME FRAME (YR.,MO.,DAY,HOUR).
IT IS POSSIBLE TO PROCESS ANY PORTION OF THE SEAS SYSTEM DATA BASE AND
IT WILL OFTENTIMES BE SIMPLEST TO DESCRIBE THE DATA AS A SERIES OF IN-
CLUSIVE AND EXCLUSIVE RANGES.  BEFORE IDENTIFYING THE ACTUAL DATA, YOU
MUST ENTER EITHER THE WORD 'INCLUDE' OR 'EXCLUDE' IF THE DATA IS TO BE
EXTRACTED OR IGNORED RESPECTIVELY ('I' AND 'E' MAY BE USED).  THE PRO-
GRAM THEN REQUESTS STATION ID / TIME FRAME ENTRIES AND RETURNS TO THIS
STEP.  AFTER YOU HAVE FINISHED IDENTIFYING YOUR DATA REQUIREMENTS, YOU
ENTER THE WORD 'DONE' (OR THE LETTER 'D') TO CONTINUE PROCESSING.
------------------------------------------------------------------[003]

ENTER 1 CHARACTER DATA SELECTION CODE (I=INCLUDE,E=EXCLUDE,D=DONE) [?]
=I

ENTER STATION IDS (LPSSS OR LPSSS-SSS FORMAT), OR ENTER 'DONE':    [?]
=?

------------------------------------------------------------------------
YOU ARE NOW READY TO IDENTIFY THOSE STATIONS FOR WHICH DATA IS NEEDED.
EACH STATION IS ACCESSED BY A UNIQUE 'STATION ID' AND REFERENCE MAY BE
MADE TO A SINGLE STATION OR TO A CONTINUOUS RANGE OF STATIONS.  REPEAT
THIS STEP AS NEEDED, TERMINATING WITH THE WORD 'DONE' (OR LETTER 'D').

'STATION ID' MUST BE IN ONE OF THE FOLLOWING FORMATS:
       (1) *'LPSS1'      - USED TO SPECIFY A SINGLE STATION;
       (2) *'LPSS1-SS2' - USED TO DENOTE A RANGE OF STATIONS.
 * 'L' = LOCATION CODE (A OR P)    'P' = PHASE CODE (1,2 OR 3 ONLY)
   'SS1','SS2' = BEGIN/END SEQUENCE NO.'S OF EACH UNIQUE STATION ID
------------------------------------------------------------------[005]

ENTER STATION IDS (LPSSS OR LPSSS-SSS FORMAT), OR ENTER 'DONE':    [?]
=A3082

ENTER STATION IDS (LPSSS OR LPSSS-SSS FORMAT), OR ENTER 'DONE':    [?]
=DONE

ENTER TIME FRAME (FORMAT A OR FORMAT B), OR ENTER 'DONE':          [?]
       A - ITERATIVE TIME SEGMENTS:     Y1-Y2,M1-M2,D1-D2,H1-H2
       B - CONTINUOUS PERIOD OF TIME:   Y1,M1,D1,H1/Y2,M2,D2,H2
=?
```

```
-- ------------------------------------------------------------------
YOU ARE NOW READY TO DEFINE THE TIME FRAME WITHIN WHICH REQUESTED DATA
FOR THE ABOVE STATION(S) IS TO BE FOUND. TIME FRAMES MAY BE ENTERED IN
ONE OF THE TWO FORMATS LISTED BELOW. THIS STEP IS REPEATED AS OFTEN AS
REQUIRED, TERMINATING WITH THE WORD 'DONE' (OR THE LETTER 'D').

 (1) Y1-Y2,M1-M2,D1-D2,H1-H2  - THIS FORMAT DEFINES A TIME FRAME WHICH
     IS COMPOSED OF 'ITERATIVE' OR 'CYCLICAL' TIME SEGMENTS, SUCH AS A
     SEASON (EX.: SEASON #1 CONSISTS OF MONTHS 1 THRU 3).  IF ANY ITEM
     (RE. YEAR,MONTH,DAY,HOUR) IS BUT A SINGLE ENTRY, THE 'N2' PART OF
     THE TIME DESIGNATION MAY BE OMITTED (EX.: 56,..= YEAR 1956 ONLY).
 (2) Y1,M1,D1,H1/Y2,M2,D2,H2  - THIS FORMAT DEFINES A TIME FRAME WHICH
     CONSISTS OF A SIMPLE 'CONTINUOUS' TIME PERIOD, BEGINNING WITH THE
     TIME TO THE LEFT OF THE '/' THRU THE TIME AT THE RIGHT.
EX.'S:  A) 56,01                = ALL DATA ON FILE FOR JAN. 1956;
        B) 56-60,1-12,1-20      = 1ST 20 DAYS OF EACH MO. FROM 1956-60;
        C) 56,01,01,00/70,10,31,23 = PERIOD JAN. 1956 THRU OCT. 1970.
-------------------------------------------------------------------[008]

ENTER TIME FRAME (FORMAT A OR FORMAT B), OR ENTER 'DONE':          [?]
       A - ITERATIVE TIME SEGMENTS:     Y1-Y2,M1-M2,D1-D2,H1-H2
       B - CONTINUOUS PERIOD OF TIME:   Y1,M1,D1,H1/Y2,M2,D2,H2
=62,03,8-20

ENTER TIME FRAME (FORMAT A OR FORMAT B), OR ENTER 'DONE':          [?]
       A - ITERATIVE TIME SEGMENTS:     Y1-Y2,M1-M2,D1-D2,H1-H2
       B - CONTINUOUS PERIOD OF TIME:   Y1,M1,D1,H1/Y2,M2,D2,H2
=DONE

ENTER 1 CHARACTER DATA SELECTION CODE (I=INCLUDE,E=EXCLUDE,D=DONE) [?]
=DONE

DATA TO BE INCLUDED:
 A3082        62-62, 03-03, 08-20, 00-23

DATA TO BE EXCLUDED:

ENTER 1 CHARACTER VERIFY CODE (Y=YES,N=NO,R=RE-ENTER,C=CONTINUE)   [?]
=Y

ENTER 1 DIGIT DATA EXTRACT FILE TYPE CODE:
  1 = 'SEAS DISK FILE' (FILE NAME ASSIGNED AUTOMATICALLY)
  2 = 'USER DISK FILE' (FILE NAME INPUT BY USER)
  3 = 'USER TAPE FILE' (TAPE REEL NO. ASSIGNED BY COMPUTER OPERATOR)
=1

.....................................................................
:                                                                   :
:   A BATCH 'DATA EXTRACT' RUN HAS BEEN INITIATED (SNUMB = 6350E).  :
:...................................................................:

ENTER 2 CHARACTER FUNCTION CODE (DE,ED,PR,PE,ES):                  [?]
=DP
```

```
SELECT PROCESS (L=LIST ALL FILES; D=QUERY DATA EXTRACT FILE; S=STOP):
=L

REC. USERID        SNUMB   TYPE   STATUS   DATE      TIME   DATA   STATION(S)
  27 ROHMDSR       7472C   DATA   READY    02/05/86  13:21  ****   *P2020
  25 ROHMDSR       7481C   R820   READY    02/05/86  13:24  ****   *P1008
  24 ROHMDSR       7490C   R103   READY    02/05/86  13:27    27
                           R104
                           R105
                           R107
  59 ROHMDSR       5058E   DATA   READY    03/28/86  09:05  ****   *A3082
  60 ROHMDSR       6279E   DATA   READY    03/28/86  14:47  ****   *A3020
  61 ROHMDSR       6350E   DATA   INITIAL  03/28/86  15:07  ****   *A3082
END OF FILE

ENTER 2 CHARACTER FUNCTION CODE (DF,ED,PR,PF,ES):
=ES

-----  EXIT SEAS  -----

*BYE
**cost:  $   2.29 to date:  $   68.54=  1%
**on at 15.016 - off at 15.166 on  03 28/86

      LINE TERMINATED - CP?X-J
NO CARRIER
```

USER DISC FILE

```
*OLD USER10
*LIST

     72003      40
 72030100  390    8  323  256  13  295
 72030103  371    8  326  252  13  294
 72030106  336    8  328  274  13  294
 72030109  317    8  328  266  13  293
 72030112  268    7  337  284  13  293
 72030115  227    7  342  284  13  293
 72030118  175    6  357  291  13  293
 72030121  150    6    0  276  13  293
 72030200  142    5  358  266  13  293
 72030203  135    5    6  260  13  293
 72030206  147    5   13  253  13  293
 72030209  151    5    6  246  13  293
 72030212  159    6    0  237  13  293
 72030215  140    5  358  235  13  293
 72030218  127    5  357  232  13  293
 72030221  144    5  354  229  13  293
 72030300  174    6  351  230  13  293
 72030303  190    6  343  225  13  293
 72030306  197    6  340  227  13  293
 72030309  206    6  334  220  13  293
 72030312  217    6  333  223  13  293
 72030315  227    7  337  212  13  293
 72030318  233    7  336  213  13  293
 72030321  224    7  335  211  13  293
 72030400  233    7  336  216  13  293
 72030403  246    7  337  222  13  293
 72030406  254    7  336  234  13  293
 72030409  245    7  339  237  13  293
 72030412  238    7  340  235  13  293
 72030415  193    6  350  247  13  293
 72030418  164    6  355  245  13  293
 72030421  145    5    1  240  13  293
 72030500  126    5   10  237  13  293
 72030503  123    5   13  230  13  293
 72030506  122    5   21  224  13  293
 72030509  113    5   29  220  13  293
 72030512   93    5   35  213  13  293
 72030515  108    5   50  210  13  293
 72030518  132    5   61  204  13  293
 72030521  130    5   62  197  13  293
```

USER File Format

The USER disc or tape file created from SEAS is an ASCII file in the following format:

Line 1 - FORMAT(5X,A1,I1,I3,1X,I5)

Variables: Area (ocean)
Phase
Station number
Number of records in file

Lines 2-n -FORMAT (2X,I8,2(I4,I3,I4))

Variables: Date/time
Sea height
Sea period
Sea direction
Swell height
Swell period
Swell direction

Examples

Examples of control cards or access subroutines required for using SEAS USER disc or tape files as input to Fortran programs for the US Army Engineer Waterways Experiment Station DPS-8 follow:

Interactive

```
CALL ATTACH(01,"/USERfile;",1,0,ISTAT,BUF)
```

Variables: Fortran file code
USER disc file name
Permission code (1=Read only; 2=Write only; 3=Read and write)
File type code (0=Sequential; 1=Random)
Status word
Buffer

A complete description of the ATTACH subroutine and its variables can be

found in a current edition of the Honeywell Fortran manual.

Batch

Example 1

```
10$$N,J
20$:IDENT:YOURID,YOURNAME
30$:OPTION:FORTRAN
40$:USE:.GTLIT
50$:FORTY
60$$SELECT(YOURID/PROGRAM)
70$:EXECUTE
80$:LIMITS:...(as required for your program)
90$:PRFML:01,R,L,YOURID/USERfile
100$:ENDJOB
```

Example 2

```
10$$N,J
20$:IDENT:YOURID,YOURNAME
30$:OPTION:FORTRAN
40$:USE:.GTLIT
50$:FORTY
60$$SELECT(YOURID/PROGRAM)
70$:EXECUTE
80$:LIMITS:...
90$:DATA:01
100$$SELECT(YOURID/USERfile)
100$:ENDJOB
```

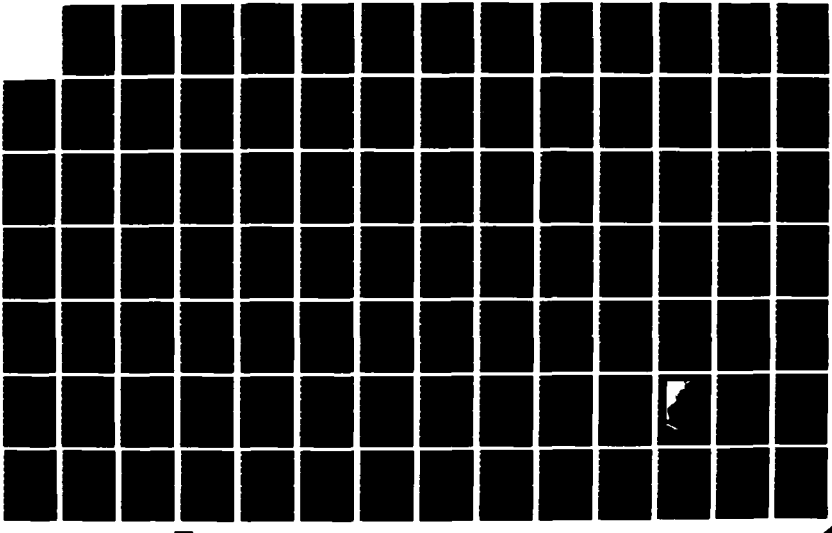
For a USER tape, substitute the following lines in place of Line No. 90 in Example 1 above:

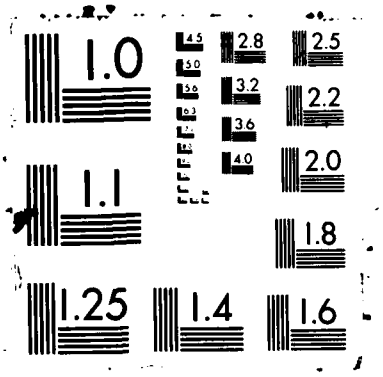
```
90$:FFILE:01,NSTDLB,NSER,FIXLNG/8,BUFSIZ/800
95$:TAPE9:01,X1D,,REEL#
```

Obtain the Reel number of your USER tape by JOUT of your Data Extract job if the SEAS system fails to record your reel number into your "DISPLAY FILES" record.

AD-A182 578 SEA-STATE ENGINEERING ANALYSIS SYSTEM (SEAS) REVISION (U) COASTAL ENGINEERING RESEARCH CENTER VICKSBURG MS D S MCANENY NOV 86 CERC-WIS-10-REV 2/3

UNCLASSIFIED F/G 8/3 NL




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
6.3

S E A S S Y S T E M

BASIC TABULATION
OF
HINDCAST WAVE PARAMETERS

REPORT NO. 101

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

STATION	YEAR	MONTH	DAY	HOUR	ACTION
P2010	75,	10,	10,	00	THRU
	75,	10,	15,	21	INCLUDED

TOTAL CASES= 48

SEAS SYSTEM REPORT NO. 101
STATION HINDCAST DATA

STATION: P2010		--- SEA READINGS ---			-- SWELL READINGS --			----- COMBINED -----		
DATE		HEIGHT	PERIOD	DIRECT	HEIGHT	PERIOD	DIRECT	HEIGHT	PERIOD	DIRECT
YY/MM/DD	HOUR	(CM)	(SECS)	(DEG)	(CM)	(SECS)	(DEG)	(CM)	(SECS)	(DEG)
75/10/10	00:00	150.	8.	290.	126.	11.	306.	196.	8.	290.
75/10/10	03:00	147.	8.	287.	129.	11.	304.	196.	8.	287.
75/10/10	06:00	147.	8.	284.	135.	11.	302.	200.	8.	284.
75/10/10	09:00	145.	8.	280.	143.	11.	301.	204.	8.	280.
75/10/10	12:00	146.	8.	278.	153.	11.	299.	211.	11.	299.
75/10/10	15:00	208.	11.	288.	76.	13.	297.	221.	11.	288.
75/10/10	18:00	228.	13.	289.	40.	14.	298.	231.	13.	289.
75/10/10	21:00	224.	11.	288.	88.	13.	296.	241.	11.	288.
75/10/11	00:00	246.	13.	289.	43.	14.	297.	250.	13.	289.
75/10/11	03:00	255.	13.	290.	44.	14.	297.	259.	13.	290.
75/10/11	06:00	263.	13.	290.	44.	14.	297.	267.	13.	290.
75/10/11	09:00	267.	13.	290.	46.	14.	296.	271.	13.	290.
75/10/11	12:00	269.	13.	291.	45.	14.	296.	273.	13.	291.
75/10/11	15:00	272.	13.	291.	45.	14.	296.	276.	13.	291.
75/10/11	18:00	273.	13.	291.	44.	14.	295.	277.	13.	291.
75/10/11	21:00	258.	11.	292.	106.	13.	295.	279.	11.	292.
75/10/12	00:00	262.	11.	292.	104.	13.	295.	282.	11.	292.
75/10/12	03:00	261.	11.	292.	101.	13.	295.	280.	11.	292.
75/10/12	06:00	261.	11.	293.	100.	13.	295.	280.	11.	293.
75/10/12	09:00	260.	11.	293.	99.	13.	295.	278.	11.	293.
75/10/12	12:00	259.	11.	293.	100.	13.	295.	278.	11.	293.
75/10/12	15:00	260.	11.	293.	100.	13.	295.	279.	11.	293.
75/10/12	18:00	261.	11.	293.	102.	13.	295.	280.	11.	293.
75/10/12	21:00	263.	11.	293.	103.	14.	295.	282.	11.	293.
75/10/13	00:00	268.	11.	294.	105.	14.	295.	288.	11.	294.
75/10/13	03:00	262.	11.	294.	107.	14.	295.	283.	11.	294.
75/10/13	06:00	253.	11.	294.	110.	14.	295.	276.	11.	294.
75/10/13	09:00	248.	11.	294.	112.	14.	295.	272.	11.	294.
75/10/13	12:00	200.	9.	295.	182.	13.	295.	270.	9.	295.
75/10/13	15:00	180.	8.	295.	198.	13.	295.	268.	13.	295.
75/10/13	18:00	180.	8.	295.	197.	13.	295.	267.	13.	295.
75/10/13	21:00	182.	8.	295.	196.	13.	295.	267.	13.	295.
75/10/14	00:00	166.	8.	296.	206.	13.	295.	265.	13.	295.
75/10/14	03:00	160.	8.	296.	204.	13.	295.	259.	13.	295.
75/10/14	06:00	158.	8.	295.	202.	13.	295.	256.	13.	295.
75/10/14	09:00	65.	5.	306.	246.	13.	295.	254.	13.	295.
75/10/14	12:00	65.	5.	306.	243.	13.	295.	252.	13.	295.
75/10/14	15:00	65.	5.	306.	241.	13.	295.	250.	13.	295.
75/10/14	18:00	65.	5.	306.	240.	13.	295.	249.	13.	295.
75/10/14	21:00	65.	5.	306.	238.	13.	295.	247.	13.	295.
75/10/15	00:00	65.	5.	305.	237.	13.	295.	246.	13.	295.
75/10/15	03:00	57.	5.	305.	236.	13.	295.	243.	13.	295.
75/10/15	06:00	41.	5.	319.	237.	13.	295.	241.	13.	295.
75/10/15	09:00	41.	5.	318.	235.	13.	295.	239.	13.	295.
75/10/15	12:00	41.	5.	318.	234.	11.	295.	238.	11.	295.
75/10/15	15:00	41.	5.	318.	233.	11.	295.	237.	11.	295.
75/10/15	18:00	41.	5.	318.	231.	11.	295.	235.	11.	295.
75/10/15	21:00	41.	5.	318.	229.	11.	295.	233.	11.	295.

S*E A S S Y S T E M

TIME PLOT OF WAVE HEIGHT

(COMBINED SEA+SWELL SIGNIFICANT WAVES)

REPORT NO. 102

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

STATION	YEAR	MONTH	DAY	HOUR	ACTION
P2010	75,	10,	10,	00	THRU
	75,	10,	14,	21	INCLUDED

TOTAL CASES= 40

SEAS SYSTEM REPORT NO. 102
STATION DATA PLOT

STATION: P2010 DATE YY/MM/DD HR	HEIGHT (CM)	PERIOD (SEC)	DIRECTION (DEG)
	(-XMIN= 195.57607 XMAX= 287.83502-)	(-XMIN= 8.00000 XMAX= 13.00000-)	(-XMIN= 280.00000 XMAX= 299.00000-)
	XBAR= 257.76231	XBAR= 11.60000	XBAR= 292.17500
	STDEV= 26.26187	STDEV= 1.61404	STDEV= 3.50743
75/10/10 00	*	*	*
75/10/10 03	*	*	*
75/10/10 06	*	*	*
75/10/10 09	*	*	*
75/10/10 12	*	*	*
75/10/10 15	*	*	*
75/10/10 18	*	*	*
75/10/10 21	*	*	*
75/10/11 00	*	*	*
75/10/11 03	*	*	*
75/10/11 06	*	*	*
75/10/11 09	*	*	*
75/10/11 12	*	*	*
75/10/11 15	*	*	*
75/10/11 18	*	*	*
75/10/11 21	*	*	*
75/10/12 00	*	*	*
75/10/12 03	*	*	*
75/10/12 06	*	*	*
75/10/12 09	*	*	*
75/10/12 12	*	*	*
75/10/12 15	*	*	*
75/10/12 18	*	*	*
75/10/12 21	*	*	*
75/10/13 00	*	*	*
75/10/13 03	*	*	*
75/10/13 06	*	*	*
75/10/13 09	*	*	*
75/10/13 12	*	*	*
75/10/13 15	*	*	*
75/10/13 18	*	*	*
75/10/13 21	*	*	*
75/10/14 00	*	*	*
75/10/14 03	*	*	*
75/10/14 06	*	*	*
75/10/14 09	*	*	*
75/10/14 12	*	*	*
75/10/14 15	*	*	*
75/10/14 18	*	*	*
75/10/14 21	*	*	*

S E A S S Y S T E M

PERCENT OCCURRENCE TABLES
OF
WAVE HEIGHT, PERIOD, AND DIRECTION

(COMBINED SEA+SWELL SIGNIFICANT WAVES)

REPORT NO. 103

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

STATION	YEAR	MONTH	DAY	HOUR	ACTION
P2010	75,	10,	10,	00	THRU
	75,	10,	15,	21	INCLUDED

TOTAL CASES= 48

SEAS SYSTEM REPORT NO. 103

STATION: P2010 AZIMUTH(DEGREES)=281.25-303.74 (CENTERED ABOUT 292.5) TOTAL CASES= 47
PERCENT OCCURRENCE (X1000) OF HEIGHT AND PERIOD BY DIRECTION PERCENT CALM= 0.
PERIOD(SECONDS)

HEIGHT(METERS)	4.44-6.44	6.45-8.69	8.70-9.51	9.52-10.52	10.53-11.75	11.76-13.32	13.33-15.37	15.38-18.17	18.18-22.21	22.22-+	TOTAL
0.01- 0.49	0	0	0	0	0	0	0	0	0	0	0
0.50- 0.99	0	0	0	0	0	0	0	0	0	0	0
1.00- 1.49	0	0	0	0	0	0	0	0	0	0	0
1.50- 1.99	0	6250	0	0	0	0	0	0	0	0	6250
2.00- 2.49	0	0	0	0	14583	18750	0	0	0	0	33333
2.50- 2.99	0	0	2083	0	27083	29166	0	0	0	0	58332
3.00- 3.49	0	0	0	0	0	0	0	0	0	0	0
3.50- 3.99	0	0	0	0	0	0	0	0	0	0	0
4.00- 4.49	0	0	0	0	0	0	0	0	0	0	0
4.50- 4.99	0	0	0	0	0	0	0	0	0	0	0
5.00- 5.49	0	0	0	0	0	0	0	0	0	0	0
5.50- 5.99	0	0	0	0	0	0	0	0	0	0	0
6.00- 6.49	0	0	0	0	0	0	0	0	0	0	0
6.50- 6.99	0	0	0	0	0	0	0	0	0	0	0
7.00- 7.49	0	0	0	0	0	0	0	0	0	0	0
7.50- 7.99	0	0	0	0	0	0	0	0	0	0	0
8.00- 8.49	0	0	0	0	0	0	0	0	0	0	0
8.50- 8.99	0	0	0	0	0	0	0	0	0	0	0
9.00- 9.49	0	0	0	0	0	0	0	0	0	0	0
9.50- 9.99	0	0	0	0	0	0	0	0	0	0	0
10.00-10.49	0	0	0	0	0	0	0	0	0	0	0
10.50-10.99	0	0	0	0	0	0	0	0	0	0	0
11.00-11.49	0	0	0	0	0	0	0	0	0	0	0
11.50-11.99	0	0	0	0	0	0	0	0	0	0	0
12.00-12.49	0	0	0	0	0	0	0	0	0	0	0
12.50-12.99	0	0	0	0	0	0	0	0	0	0	0
13.00-13.49	0	0	0	0	0	0	0	0	0	0	0
13.50-13.99	0	0	0	0	0	0	0	0	0	0	0
14.00-14.49	0	0	0	0	0	0	0	0	0	0	0
14.50 +	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	6250	2083	0	41666	47916	0	0	0	0	

SEAS SYSTEM REPORT NO. 103

STATION: P2010 AZIMUTH(DEGREES)= 0.0-360.0 TOTAL CASES= 48

PERCENT OCCURRENCE (X1000) OF HEIGHT AND PERIOD BY DIRECTION PERCENT CALM= 0.

PERIOD(SECONDS)

HEIGHT(METERS)	4.44-6.44	6.45-8.69	8.70-9.51	9.52-10.52	10.53-11.75	11.76-13.32	13.33-15.37	15.38-18.17	18.18-22.21	22.22-+	TOTAL
0.01- 0.49	0	0	0	0	0	0	0	0	0	0	0
0.50- 0.99	0	0	0	0	0	0	0	0	0	0	0
1.00- 1.49	0	0	0	0	0	0	0	0	0	0	0
1.50- 1.99	0	6250	0	0	0		0	0	0	0	6250
2.00- 2.49	0	2083	0	0	14583	18750	0	0	0	0	35416
2.50- 2.99	0	0	2083	0	27083	29166	0	0	0	0	58332
3.00- 3.49	0	0	0	0	0	0	0	0	0	0	0
3.50- 3.99	0	0	0	0	0	0	0	0	0	0	0
4.00- 4.49	0	0	0	0	0	0	0	0	0	0	0
4.50- 4.99	0	0	0	0	0	0	0	0	0	0	0
5.00- 5.49	0	0	0	0	0	0	0	0	0	0	0
5.50- 5.99	0	0	0	0	0	0	0	0	0	0	0
6.00- 6.49	0	0	0	0	0	0	0	0	0	0	0
6.50- 6.99	0	0	0	0	0	0	0	0	0	0	0
7.00- 7.49	0	0	0	0	0	0	0	0	0	0	0
7.50- 7.99	0	0	0	0	0	0	0	0	0	0	0
8.00- 8.49	0	0	0	0	0	0	0	0	0	0	0
8.50- 8.99	0	0	0	0	0	0	0	0	0	0	0
9.00- 9.49	0	0	0	0	0	0	0	0	0	0	0
9.50- 9.99	0	0	0	0	0	0	0	0	0	0	0
10.00-10.49	0	0	0	0	0	0	0	0	0	0	0
10.50-10.99	0	0	0	0	0	0	0	0	0	0	0
11.00-11.49	0	0	0	0	0	0	0	0	0	0	0
11.50-11.99	0	0	0	0	0	0	0	0	0	0	0
12.00-12.49	0	0	0	0	0	0	0	0	0	0	0
12.50-12.99	0	0	0	0	0	0	0	0	0	0	0
13.00-13.49	0	0	0	0	0	0	0	0	0	0	0
13.50-13.99	0	0	0	0	0	0	0	0	0	0	0
14.00-14.49	0	0	0	0	0	0	0	0	0	0	0
14.50 +	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	9333	2083	0	41666	47916	0	0	0	0	

S E A S S Y S T E M

HISTOGRAM
OF
WAVE HEIGHT

(COMBINED SEA+SWELL SIGNIFICANT WAVES)

REPORT NO. 104

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

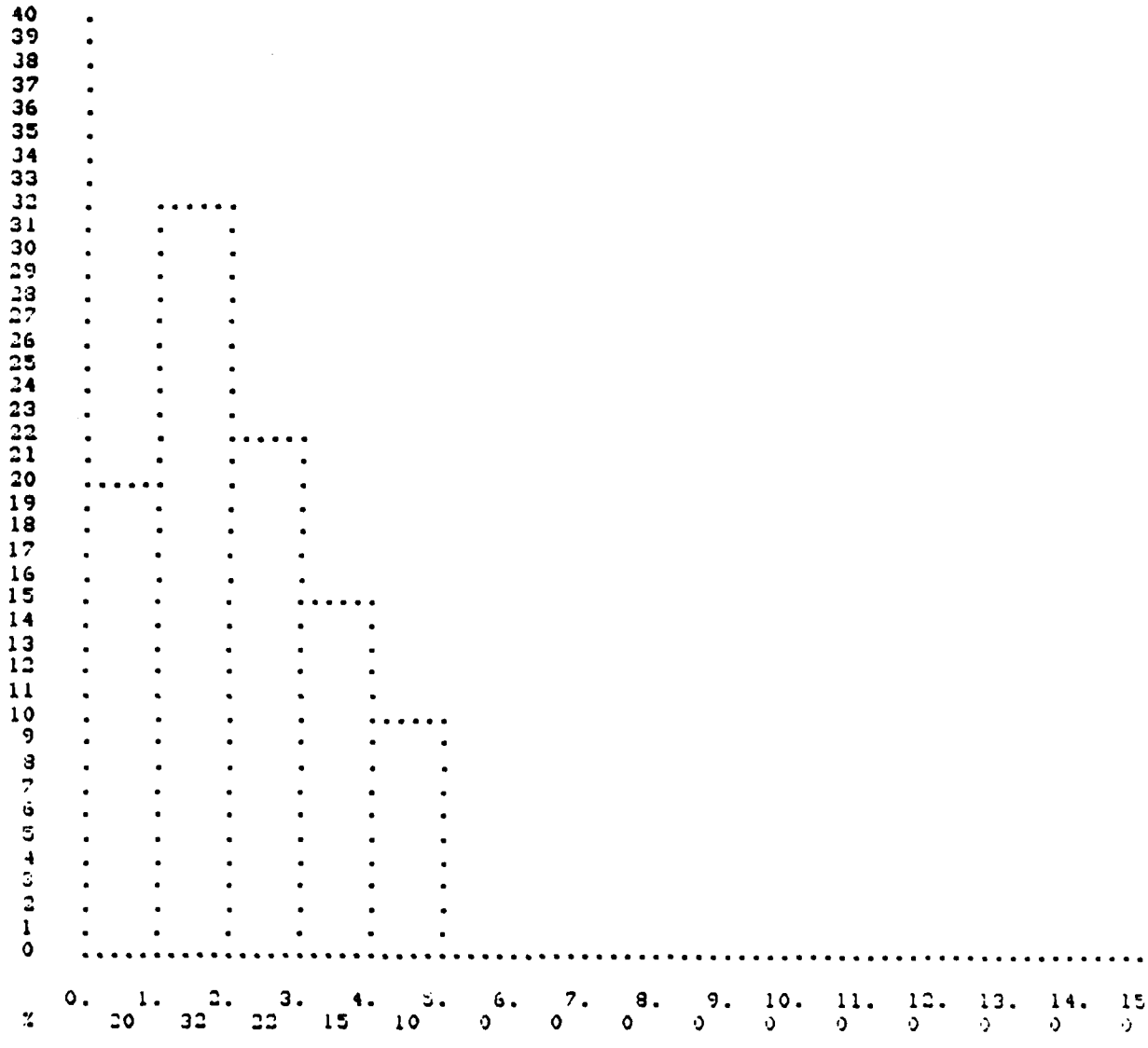
STATION	YEAR	MONTH	DAY	HOUR	ACTION
A1001	56-56,	03-03,	01-05,	00-23	INCLUDED

TOTAL CASES= 40

DATE: 11/14/85 PAGE: 3

SEAS SYSTEM REPORT NO. 104

STATION: A1001 HISTOGRAM OF HEIGHT (METERS) TOTAL CASES= 40



S E A S S Y S T E M

HISTOGRAM
OF
WAVE PERIOD

(COMBINED SEA+SWELL SIGNIFICANT WAVES)

REPORT NO. 105

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

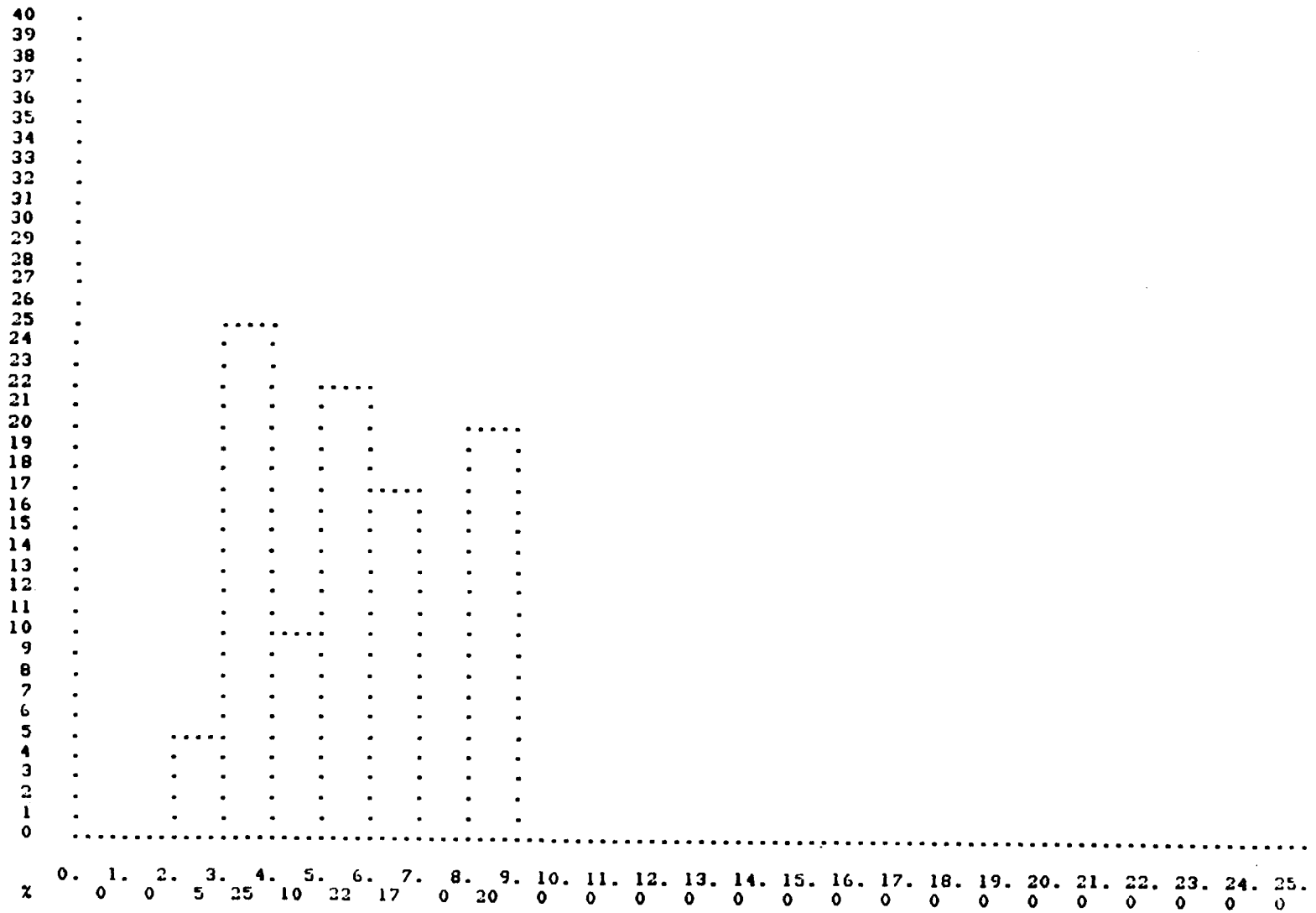
STATION	YEAR	MONTH	DAY	HOUR	ACTION
A1001	56-56,	03-03,	01-05,	00-23	INCLUDED

TOTAL CASES= 40

DATE: 11/14/85 PAGE: 2

SEAS SYSTEM REPORT NO. 105

STATION: A1001 HISTOGRAM OF PERIOD (SECONDS) TOTAL CASES= 40



S E A S S Y S T E M

HISTOGRAM
OF
WAVE DIRECTION

(COMBINED SEA+SWELL SIGNIFICANT WAVES)

REPORT NO. 106

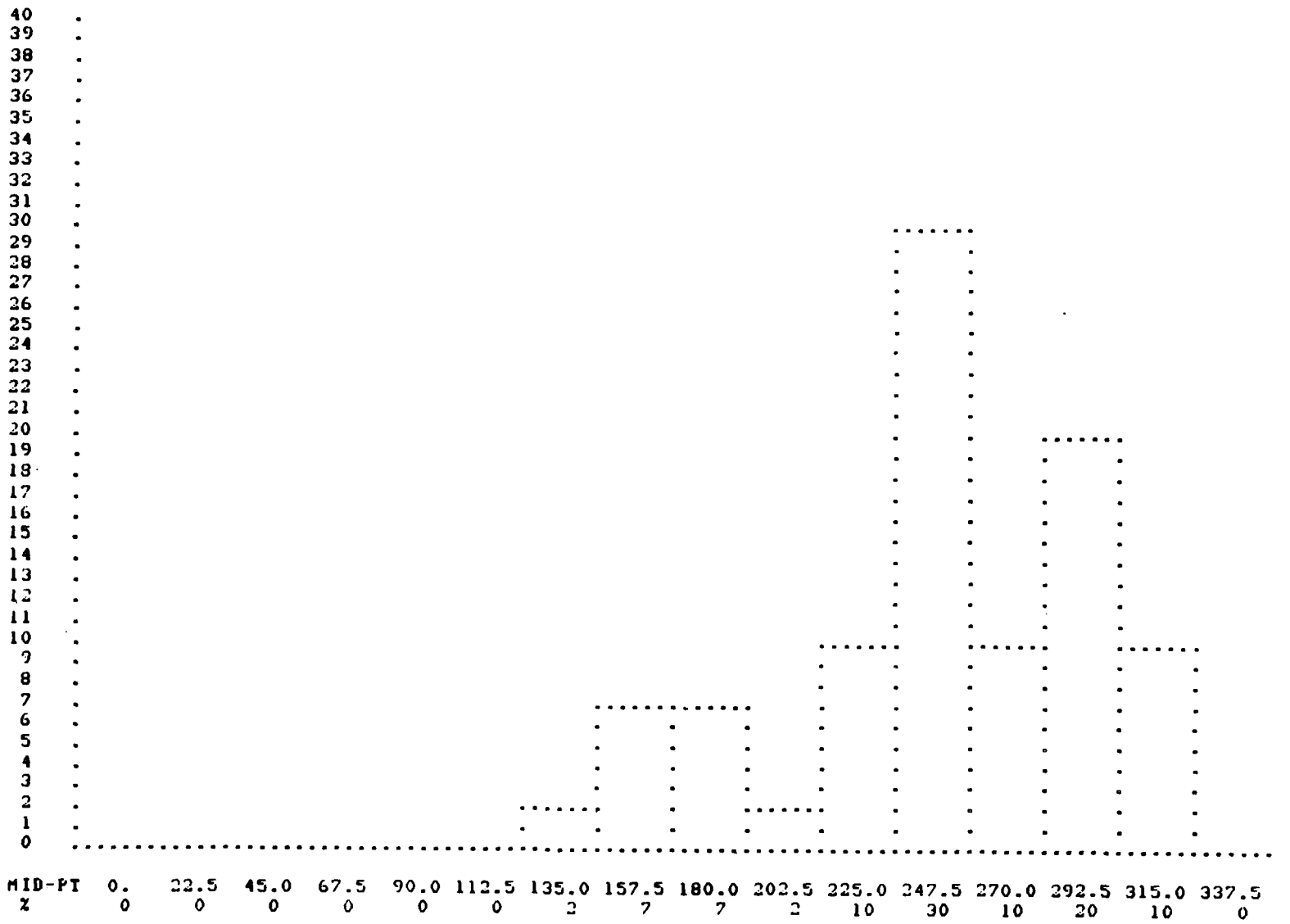
THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

STATION	YEAR	MONTH	DAY	HOUR	ACTION
A1001	56-56,	03-03,	01-05,	00-23	INCLUDED

TOTAL CASES= 40

SEAS SYSTEM REPORT NO. 106

STATION: A1001 HISTOGRAM OF DIRECTION (DEGREES) TOTAL CASES= 40



MID-PT	0.	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5
%	0	0	0	0	0	0	2	7	7	2	10	30	10	20	10	0

S E A S S Y S T E M

SUMMARY STATISTICS
OF
SELECTED WAVE DATA

THIS REPORT SET CONSISTS OF THE FOLLOWING:
1. MEAN WAVE HEIGHT TABLE BY MONTH AND YEAR
2. LARGEST WAVE HEIGHT TABLE BY MONTH AND YEAR
3. STATISTICS FOR SPECIFIED PERIOD

REPORT NO. 107

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

STATION	YEAR	MONTH	DAY	HOUR	ACTION
P2020	56-75,	01-12,	01-31,	00-23	INCLUDED

TOTAL CASES= 58440

DATE: 08/19/85 PAGE: 1

SEAS SYSTEM REPORT NO. 107
MEAN WAVE HEIGHT (IN METERS) BY MONTH AND YEAR

STATION: P2020 TOTAL CASES:58440

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1956	3.3	3.6	3.1	2.6	2.6	2.6	1.7	2.1	1.6	2.2	2.6	2.8	2.6
1957	3.1	3.3	3.3	2.9	2.4	2.2	1.8	1.7	2.1	2.4	3.1	3.8	2.7
1958	4.1	4.1	3.2	3.6	2.3	1.9	2.0	1.8	1.8	2.1	3.4	3.4	2.8
1959	3.7	4.3	3.2	3.0	2.4	2.3	1.9	1.7	2.3	2.5	2.9	3.7	2.8
1960	3.8	4.1	2.4	2.9	2.5	1.8	1.8	1.9	1.5	2.3	3.7	3.5	2.7
1961	4.0	3.8	3.4	2.5	2.3	2.3	1.6	1.1	1.6	2.4	2.8	3.2	2.6
1962	2.7	3.5	3.3	2.7	2.0	1.8	2.0	2.0	2.0	2.9	4.0	3.4	2.7
1963	3.3	3.5	3.5	2.5	2.2	2.5	2.0	1.6	2.0	3.3	3.4	3.3	2.8
1964	4.7	3.2	3.7	3.4	2.4	2.1	2.6	2.1	2.0	2.3	3.3	4.0	3.0
1965	3.5	3.3	3.0	2.8	2.8	2.7	1.8	1.6	1.7	2.4	3.1	4.3	2.7
1966	3.9	3.6	3.3	2.6	2.5	2.1	2.0	1.9	2.0	2.4	2.6	3.6	2.7
1967	3.7	3.8	2.9	2.7	2.1	1.8	1.9	1.5	2.7	3.1	3.2	3.7	2.7
1968	3.2	3.2	3.6	3.0	2.2	2.1	2.3	1.9	1.8	2.6	3.5	3.9	2.8
1969	3.2	4.5	3.5	4.0	2.4	2.4	2.0	1.8	1.9	3.0	3.2	5.2	3.1
1970	4.1	4.6	4.0	3.7	2.5	2.1	2.0	1.8	2.0	2.4	3.2	4.1	3.0
1971	3.5	3.1	3.5	3.6	2.6	2.4	1.9	2.1	2.2	2.5	3.4	3.9	2.9
1972	4.2	3.5	3.0	2.9	2.5	2.4	2.1	1.9	1.5	2.0	4.3	3.4	2.8
1973	4.3	4.0	4.4	3.4	2.8	2.7	2.4	2.4	2.4	2.3	3.5	4.3	3.2
1974	3.3	3.8	3.7	3.6	3.4	2.6	2.2	1.8	1.7	2.7	3.5	4.0	3.0
1975	2.9	3.4	3.5	2.4	2.4	1.9	1.9	1.5	0.8	2.6	2.8	2.9	2.4
MEAN	3.6	3.7	3.4	3.0	2.5	2.2	2.0	1.8	1.9	2.5	3.3	3.7	

DATE: 08/19/85 PAGE: 1

SEAS SYSTEM REPORT NO. 107
LARGEST WAVE HEIGHT (IN METERS) BY MONTH AND YEAR

STATION: P2020 TOTAL CASES:5844

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1956	4.9	6.9	5.5	5.4	3.8	4.0	2.8	3.4	3.1	5.2	3.7	3.9
1957	4.9	8.5	4.9	5.0	3.6	3.3	3.2	2.6	3.6	4.2	5.6	6.4
1958	6.4	6.3	5.5	7.4	3.4	3.3	2.9	3.2	3.1	4.0	6.7	5.5
1959	6.3	6.8	5.0	5.2	3.5	3.8	3.4	3.5	4.2	5.2	5.6	6.1
1960	7.6	6.8	4.1	4.9	3.9	3.0	2.8	3.1	2.5	5.3	6.0	5.8
1961	6.3	5.1	5.9	3.6	3.6	3.4	2.6	1.8	3.1	4.9	5.0	4.6
1962	4.0	6.5	5.3	4.3	3.2	3.2	3.2	3.0	3.3	6.4	5.9	5.5
1963	8.3	9.6	5.9	4.3	3.5	4.2	2.9	2.8	2.7	6.1	4.6	7.2
1964	9.4	4.5	5.9	5.6	5.6	4.3	4.0	3.5	3.2	4.5	5.6	6.7
1965	7.2	6.1	4.6	5.2	4.5	5.7	3.2	2.5	3.2	4.7	5.8	7.3
1966	5.7	5.9	6.6	4.6	3.8	3.1	3.5	2.9	3.5	3.9	4.3	5.8
1967	6.4	6.4	5.2	4.7	3.4	3.9	2.6	3.4	3.8	5.1	4.6	6.2
1968	5.2	5.3	5.1	5.6	4.3	3.9	4.2	3.1	4.4	4.0	6.3	7.3
1969	5.2	6.4	5.7	6.5	3.9	3.4	3.1	2.7	3.6	5.0	6.4	8.2
1970	6.6	7.2	6.8	6.0	4.6	3.5	3.1	2.9	3.6	4.7	5.1	6.9
1971	6.1	4.8	5.4	6.2	4.8	4.2	3.0	3.5	3.7	4.8	5.6	6.8
1972	7.2	5.1	4.5	5.1	4.5	3.4	3.1	2.8	2.5	3.1	6.5	7.2
1973	7.0	5.7	6.2	6.0	5.4	5.5	3.9	3.3	3.5	4.5	5.7	7.2
1974	5.8	5.5	6.5	6.4	5.0	4.0	4.0	3.5	2.8	6.2	5.7	6.4
1975	5.7	5.6	7.2	3.7	4.6	4.2	3.1	3.4	1.7	4.5	4.4	4.6

SEAS SYSTEM REPORT NO. 107
SUMMARY STATISTICS

STATION: P2020 TOTAL CASES:58440

MEAN SIGNIFICANT WAVE HEIGHT	(METERS)	2.8
MEAN PEAK WAVE PERIOD	(SECONDS)	10.7
MOST FREQUENT 22.5 DEGREE (CENTER) DIRECTION BAND . .	(DEGREES)	292.5
STANDARD DEVIATION OF WAVE HS	(METERS)	1.1
STANDARD DEVIATION OF WAVE TP	(SECONDS)	2.8
LARGEST WAVE HS	(METERS)	9.6
WAVE TP ASSOCIATED WITH LARGEST WAVE HS	(SECONDS)	13.9
AVERAGE DIRECTION ASSOCIATED WITH LARGEST WAVE HS . .	(DEGREES)	321.0

LARGEST WAVE HS OCCURRED AT 00:00 ON 02/01/63.

S E A S S Y S T E M

ESTIMATED PROBABILITIES
OF
MAXIMUM OCCURRING WAVE HEIGHT AND ASSOCIATED PERIOD

THIS REPORT SET CONSISTS OF THE FOLLOWING:
1. CUMULATIVE PROBABILITY TABLE
2. JOINT PROBABILITY TABLE
3. HISTOGRAMS OF HEIGHT AND PERIOD
4. STATISTICAL SUMMARY OF WAVE PROPERTIES

REPORT NO. 201

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

STATION	YEAR	MONTH	DAY	HOUR	ACTION
P2010	75,	10,	10,	00	THRU
	75,	10,	15,	21	INCLUDED

TOTAL CASES= 48

DATE: 09/30/86 PAGE: 1

CUMULATIVE PROBABILITIES FOR WAVE PERIODS ASSOCIATED WITH GIVEN MAXIMUM WAVE HEIGHT VALUES:

		HEIGHT	ASSOCIATED WAVE PERIOD (SECONDS)												
PDF	CDF	(FT)	5	6	7	8	9	10	11	12	13	14	15	16	17
0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	2.	0.5467	0.9764	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.	0.	3.	0.1057	0.4178	0.7229	0.9519	0.9979	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.	0.	4.	0.0226	0.1344	0.3739	0.6497	0.8728	0.9782	0.9984	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000
0.	0.	5.	0.0133	0.0718	0.2117	0.4487	0.6933	0.8751	0.9686	0.9955	0.9996	1.0000	1.0000	1.0000	1.0000
0.	0.	6.	0.0118	0.0543	0.1565	0.3432	0.5773	0.7781	0.9105	0.9746	0.9952	0.9994	0.9999	1.0000	1.0000
0.	0.	7.	0.0098	0.0475	0.1383	0.2985	0.5096	0.7111	0.8583	0.9445	0.9835	0.9964	0.9994	0.9999	1.0000
0.	0.	8.	0.0086	0.0458	0.1328	0.2771	0.4695	0.6658	0.8188	0.9159	0.9679	0.9902	0.9977	0.9996	1.0000
0.	0.	9.	0.0075	0.0418	0.1222	0.2537	0.4345	0.6285	0.7903	0.8997	0.9605	0.9876	0.9970	0.9995	1.0000
0.	0.	10.	0.0040	0.0285	0.0952	0.2181	0.4057	0.6170	0.7945	0.9105	0.9696	0.9922	0.9985	0.9998	1.0000
0.	0.	11.	0.0020	0.0194	0.0765	0.1972	0.3964	0.6232	0.8089	0.9246	0.9781	0.9955	0.9994	0.9999	1.0000
0.	0.	12.	0.0010	0.0130	0.0615	0.1802	0.3906	0.6314	0.8231	0.9369	0.9846	0.9976	0.9998	1.0000	1.0000
0.	0.	13.	0.0005	0.0086	0.0497	0.1665	0.3884	0.6418	0.8369	0.9477	0.9894	0.9987	0.9999	1.0000	1.0000
0.	0.	14.	0.0002	0.0057	0.0407	0.1556	0.3897	0.6542	0.8504	0.9572	0.9929	0.9994	1.0000	1.0000	1.0000
0.	0.	15.	0.0001	0.0038	0.0338	0.1466	0.3938	0.6684	0.8635	0.9653	0.9954	0.9997	1.0000	1.0000	1.0000
0.0000	0.0000	16.	0.0000	0.0025	0.0285	0.1387	0.4004	0.6839	0.8759	0.9722	0.9971	0.9999	1.0000	1.0000	1.0000
0.0000	0.0000	17.	0.0000	0.0017	0.0243	0.1314	0.4089	0.7005	0.8876	0.9781	0.9982	0.9999	1.0000	1.0000	1.0000
0.0009	0.0009	18.	0.0000	0.0012	0.0210	0.1241	0.4188	0.7176	0.8986	0.9829	0.9989	1.0000	1.0000	1.0000	1.0000
0.0886	0.0896	19.	0.0000	0.0008	0.0184	0.1168	0.4299	0.7350	0.9088	0.9868	0.9994	1.0000	1.0000	1.0000	1.0000
0.3365	0.4261	20.	0.0000	0.0005	0.0162	0.1092	0.4417	0.7523	0.9182	0.9900	0.9996	1.0000	1.0000	1.0000	1.0000
0.3147	0.7409	21.	0.0000	0.0004	0.0144	0.1014	0.4540	0.7693	0.9268	0.9925	0.9998	1.0000	1.0000	1.0000	1.0000
0.1619	0.9028	22.	0.0000	0.0002	0.0128	0.0934	0.4667	0.7857	0.9348	0.9944	0.9999	1.0000	1.0000	1.0000	1.0000
0.0642	0.9670	23.	0.0000	0.0002	0.0115	0.0854	0.4796	0.8013	0.9420	0.9959	0.9999	1.0000	1.0000	1.0000	1.0000
0.0225	0.9895	24.	0.0000	0.0001	0.0102	0.0774	0.4925	0.8161	0.9486	0.9971	1.0000	1.0000	1.0000	1.0000	1.0000
0.0073	0.9968	25.	0.0000	0.0001	0.0091	0.0696	0.5056	0.8301	0.9546	0.9979	1.0000	1.0000	1.0000	1.0000	1.0000
0.0022	0.9991	26.	0.0000	0.0000	0.0080	0.0620	0.5186	0.8431	0.9601	0.9985	1.0000	1.0000	1.0000	1.0000	1.0000
0.0007	0.9997	27.	0.0000	0.0000	0.0071	0.0548	0.5316	0.8552	0.9650	0.9990	1.0000	1.0000	1.0000	1.0000	1.0000
0.0002	0.9999	28.	0.	0.0000	0.0062	0.0481	0.5447	0.8664	0.9694	0.9993	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	29.	0.	0.0000	0.0053	0.0419	0.5577	0.8768	0.9734	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	30.	0.	0.0000	0.0046	0.0362	0.5707	0.8865	0.9770	0.9997	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	31.	0.	0.0000	0.0039	0.0310	0.5838	0.8955	0.9801	0.9998	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	32.	0.	0.0000	0.0033	0.0264	0.5968	0.9038	0.9830	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	33.	0.	0.0000	0.0027	0.0224	0.6099	0.9116	0.9854	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	34.	0.	0.0000	0.0022	0.0188	0.6229	0.9188	0.9876	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	35.	0.	0.0000	0.0018	0.0157	0.6360	0.9255	0.9896	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	36.	0.	0.0000	0.0015	0.0130	0.6489	0.9318	0.9912	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	37.	0.	0.0000	0.0012	0.0107	0.6619	0.9376	0.9927	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	38.	0.	0.0000	0.0009	0.0088	0.6747	0.9431	0.9939	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	39.	0.	0.0000	0.0007	0.0072	0.6875	0.9482	0.9950	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	40.	0.	0.0000	0.0006	0.0058	0.7001	0.9529	0.9959	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	41.	0.	0.0000	0.0004	0.0047	0.7126	0.9574	0.9966	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	42.	0.	0.0000	0.0003	0.0037	0.7249	0.9615	0.9973	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	43.	0.	0.0000	0.0003	0.0030	0.7371	0.9653	0.9978	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	44.	0.	0.	0.0002	0.0023	0.7490	0.9689	0.9982	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	45.	0.	0.	0.0001	0.0019	0.7607	0.9722	0.9986	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.0000	1.0000	46.	0.	0.	0.0001	0.0014	0.7722	0.9752	0.9989	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

JOINT PROBABILITIES FOR MAXIMUM WAVE HEIGHT AND ASSOCIATED PERIOD (PER TEN THOUSAND):

HEIGHT (FT)	ASSOCIATED WAVE PERIOD (SECONDS)													
	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	1	3	3	2	1	0	0	0	0	0	10
19	0	1	16	87	277	270	154	69	11	1	0	0	0	886
20	1	2	53	313	1119	1045	558	241	33	1	0	0	0	3365
21	0	1	44	274	1110	992	496	207	23	1	0	0	0	3148
22	0	0	20	138	684	516	241	97	9	0	0	0	0	1617
23	0	0	7	47	253	207	90	35	3	0	0	0	0	642
24	0	0	2	15	93	73	30	11	1	0	0	0	0	225
25	0	0	1	4	32	24	9	3	1	0	0	0	0	73
26	0	0	0	1	10	7	3	1	0	0	0	0	0	22
27	0	0	0	0	3	2	1	0	0	0	0	0	0	6
28	0	0	0	0	1	1	0	0	0	0	0	0	0	2
29	0	0	0	0	0	0	0	0	0	0	0	0	0	1
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	4	143	972	3505	3140	1584	665	90	3	1	0	0	

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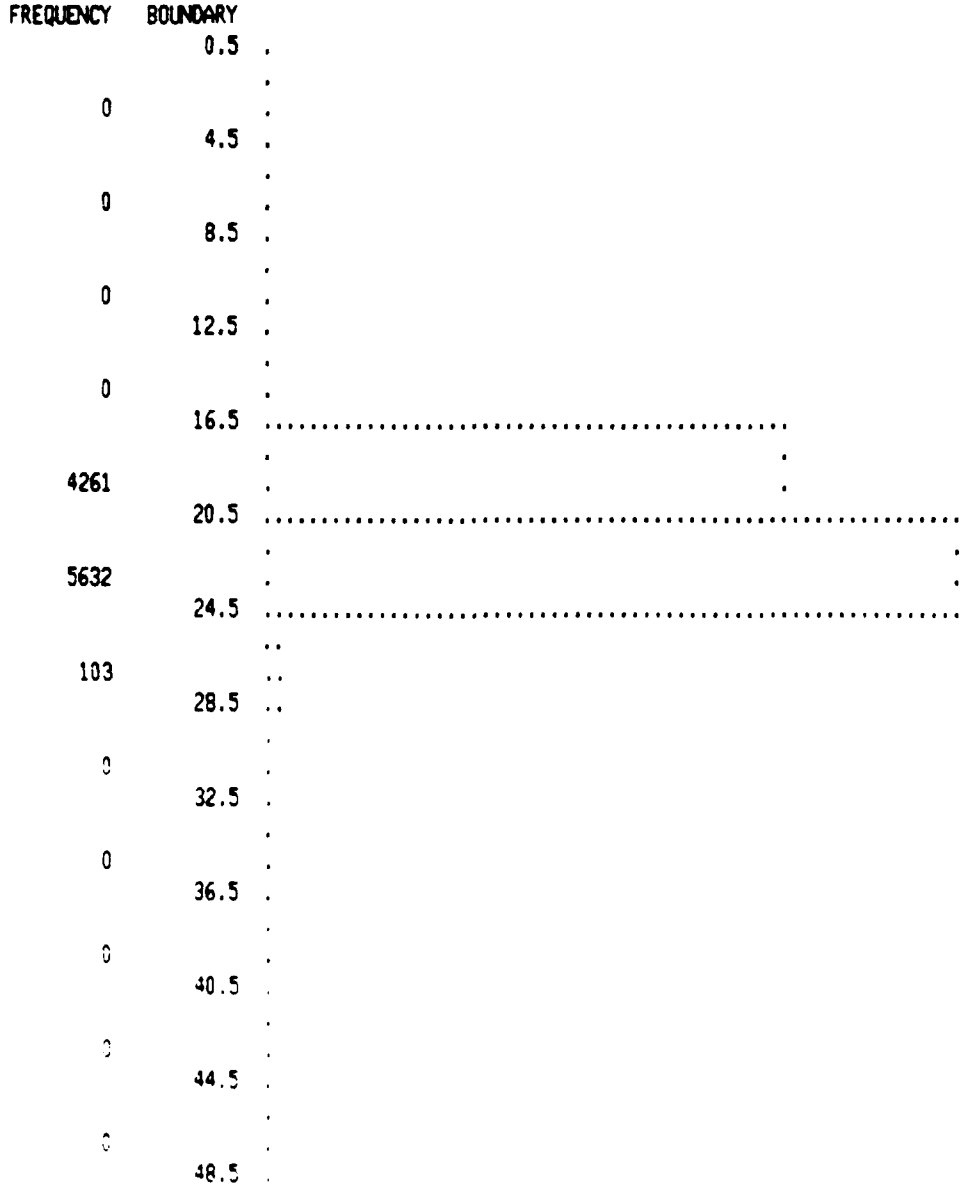
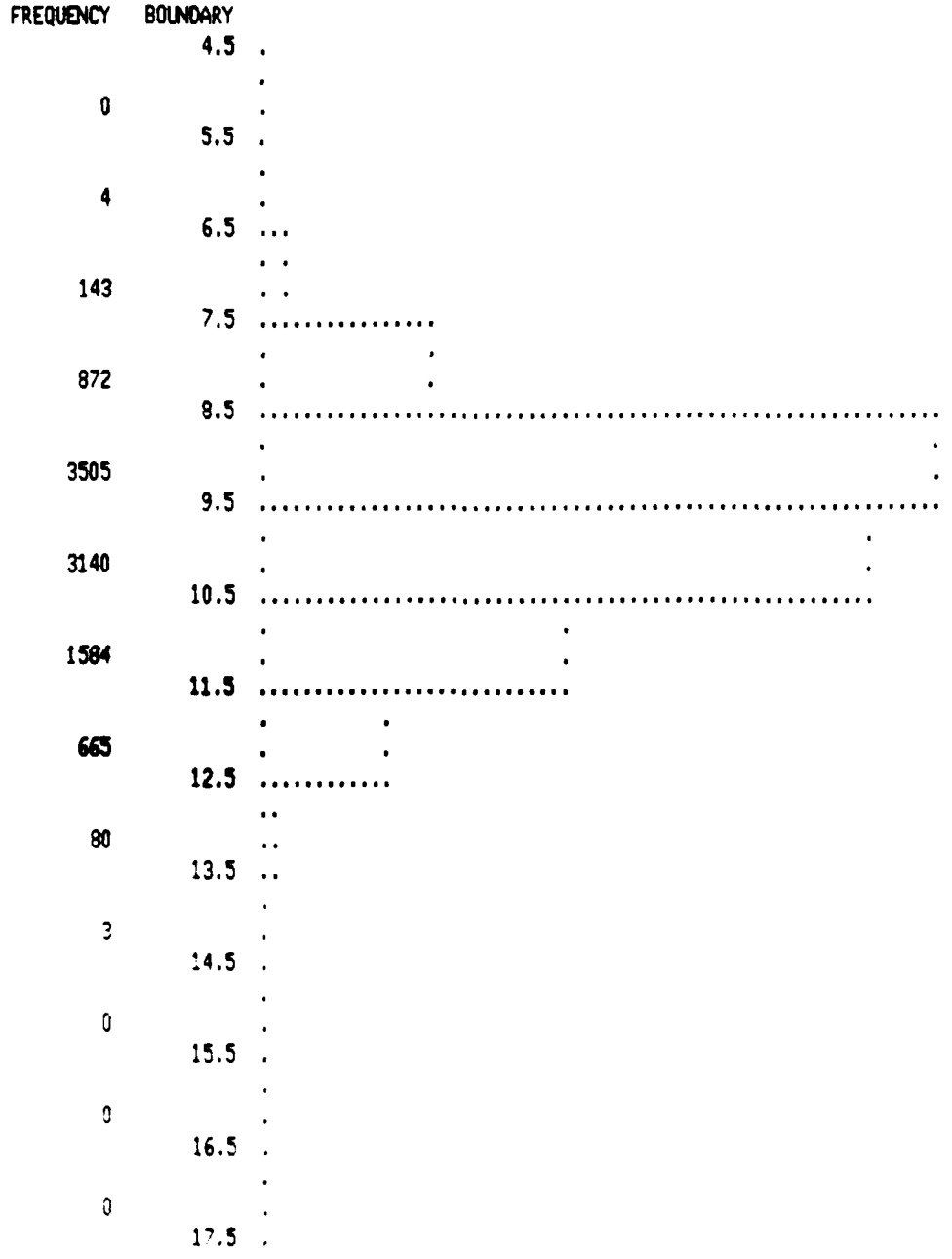
HISTOGRAM OF ESTIMATED FREQUENCIES FOR MAXIMUM WAVE HEIGHTS

HEIGHT IN FEET (1.0- 46.0)



HISTOGRAM OF ESTIMATED FREQUENCIES FOR ASSOCIATED WAVE PERIODS

PERIOD IN SECONDS (5.0-17.0)



STATISTICAL SUMMARY TABLE OF ESTIMATED PROBABILITIES FOR MAXIMUM WAVE PROPERTIES:

WAVE HEIGHT SUMMARY (IN FEET)		WAVE PERIOD SUMMARY (IN SECONDS)	
MEAN	20.89	MEAN	9.75
STD. ERROR	1.23	STD. ERROR	1.13
VARIANCE	1.52	VARIANCE	1.27
SKEWNESS	0.92	SKEWNESS	0.31
KURTOSIS	1.51	KURTOSIS	0.0
MODE	20.00	MODE	9.00
QUANTILES:		QUANTILES:	
10 PERCENT	19.53	10 PERCENT	8.47
20 PERCENT	19.83	20 PERCENT	8.78
30 PERCENT	20.13	30 PERCENT	9.06
40 PERCENT	20.42	40 PERCENT	9.35
50 PERCENT	20.73	50 PERCENT	9.65
60 PERCENT	21.05	60 PERCENT	9.97
70 PERCENT	21.37	70 PERCENT	10.29
80 PERCENT	21.86	80 PERCENT	10.71
90 PERCENT	22.48	90 PERCENT	11.34

S E A S S Y S T E M

JOINT PROBABILITIES
OF
INDIVIDUAL WAVE HEIGHTS AND PERIODS

THIS REPORT SET CONSISTS OF THE FOLLOWING:
1. JOINT PROBABILITY TABLE
2. HISTOGRAMS OF HEIGHT AND PERIOD
3. STATISTICAL SUMMARY OF WAVE PROPERTIES

REPORT NO. 301

THE FOLLOWING DATA HAVE BEEN USED IN THE PREPARATION OF THIS REPORT:

STATION	YEAR	MONTH	DAY	HOUR	ACTION
P2010	75,	10,	10,	00	THRU
	75,	10,	15,	21	INCLUDED

TOTAL CASES= 48

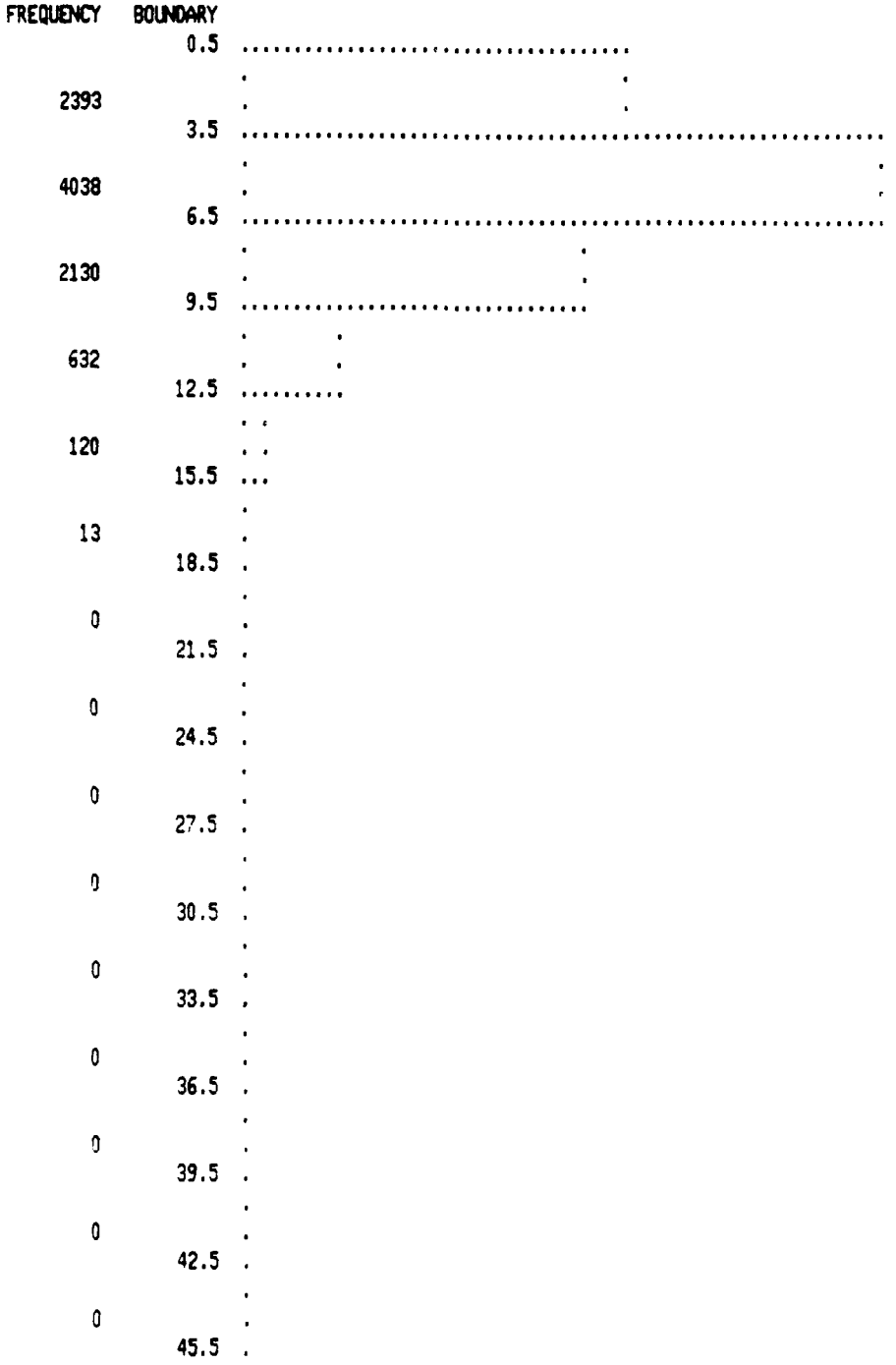
DATE: 09/30/86 PAGE: 1

ESTIMATED JOINT PROBABILITIES FOR INDIVIDUAL WAVE HEIGHTS AND ASSOCIATED PERIODS (PER TEN THOUSAND):

HEIGHT (FT)	ASSOCIATED WAVE PERIOD (SECONDS)													
	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL
1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
2	292	395	320	19	0	0	0	0	0	0	0	0	0	1026
3	6	170	408	405	309	64	3	0	0	0	0	0	0	1365
4	2	43	186	336	387	322	153	30	2	0	0	0	0	1461
5	2	24	95	199	314	329	249	129	38	6	1	0	0	1386
6	3	17	58	126	217	270	235	157	77	25	5	1	0	1191
7	1	10	39	89	150	195	188	139	82	37	12	3	1	946
8	1	6	27	62	100	133	135	107	69	37	16	5	1	699
9	0	4	17	39	63	87	94	79	53	30	13	5	1	485
10	0	1	8	21	39	60	67	57	37	19	7	2	0	318
11	0	0	3	11	24	39	45	37	23	11	3	1	0	197
12	0	0	1	6	14	25	28	22	13	6	2	0	0	117
13	0	0	1	3	8	15	17	13	7	3	1	0	0	68
14	0	0	0	1	4	8	9	7	4	1	0	0	0	34
15	0	0	0	1	2	4	5	3	2	1	0	0	0	18
16	0	0	0	0	1	2	2	2	1	0	0	0	0	8
17	0	0	0	0	0	1	1	1	0	0	0	0	0	3
18	0	0	0	0	0	1	1	0	0	0	0	0	0	2
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	309	670	1163	1318	1632	1555	1232	783	408	176	60	17	3	

HISTOGRAM OF ESTIMATED FREQUENCIES FOR INDIVIDUAL WAVE HEIGHTS

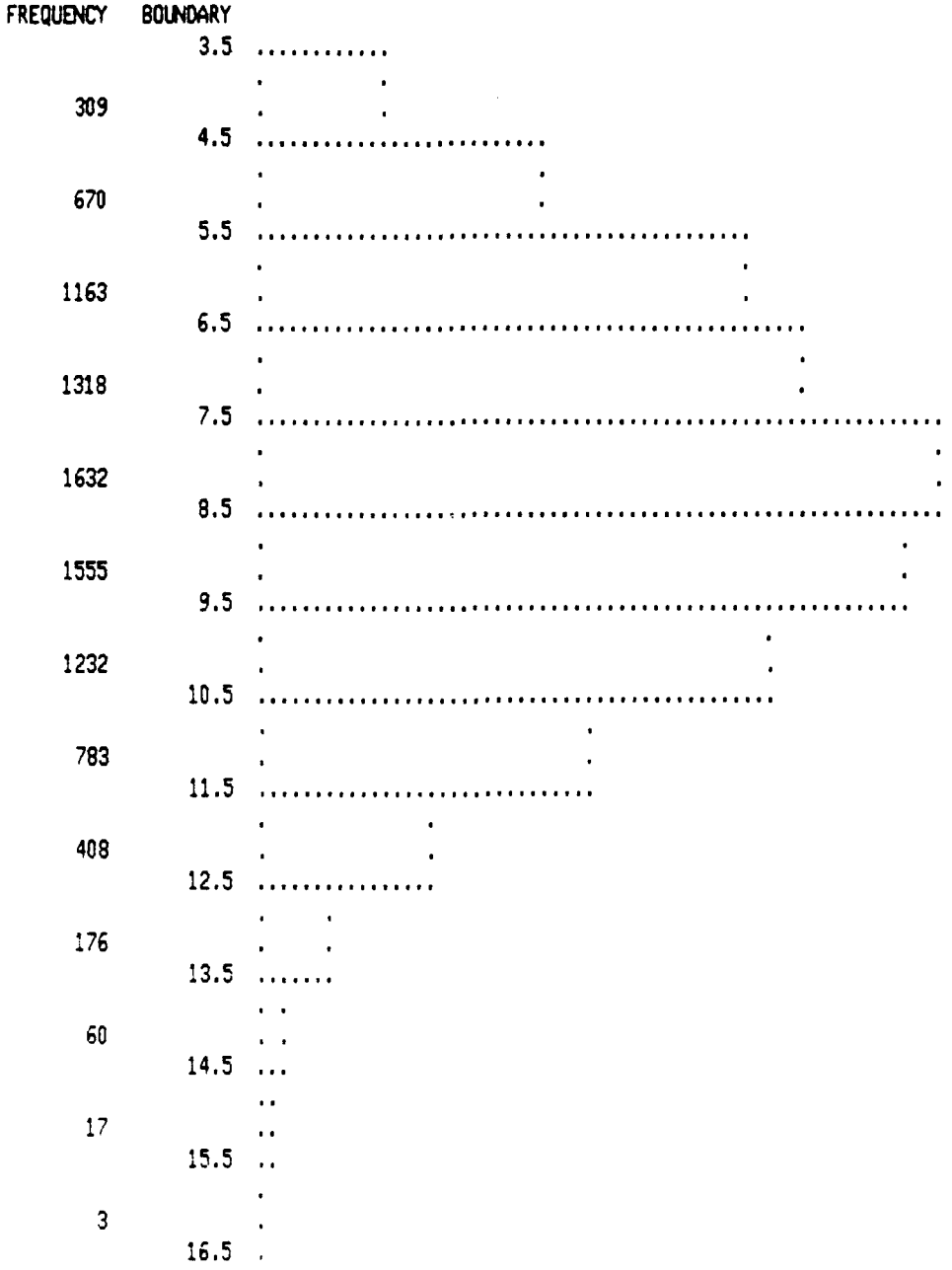
HEIGHT IN FEET (1.0- 45.0)



DATE: 09/30/86 PAGE: 3

HISTOGRAM OF ESTIMATED FREQUENCIES FOR ASSOCIATED WAVE PERIODS

PERIOD IN SECONDS (4.0-16.0)



STATISTICAL SUMMARY TABLE OF ESTIMATED PROBABILITIES FOR INDIVIDUAL WAVE PROPERTIES:

WAVE HEIGHT SUMMARY (IN FEET)		WAVE PERIOD SUMMARY (IN SECONDS)	
MEAN	5.50	MEAN	8.27
STD. ERROR	2.63	STD. ERROR	2.17
VARIANCE	6.94	VARIANCE	4.71
SKEWNESS	0.86	SKEWNESS	0.18
KURTOSIS	0.66	KURTOSIS	-0.4
MODE	4.00	MODE	8.00
QUANTILES:		QUANTILES:	
10 PERCENT	2.41	10 PERCENT	5.43
20 PERCENT	3.11	20 PERCENT	6.26
30 PERCENT	3.78	30 PERCENT	7.00
40 PERCENT	4.42	40 PERCENT	7.66
50 PERCENT	5.09	50 PERCENT	8.24
60 PERCENT	5.80	60 PERCENT	8.82
70 PERCENT	6.61	70 PERCENT	9.42
80 PERCENT	7.63	80 PERCENT	10.16
90 PERCENT	9.16	90 PERCENT	11.15

DATE: 08/20/85 PAGE: 1

SEAS SYSTEM REPORT NO. 810
PERCENT OCCURRENCE (X1000) OF HEIGHT AND PERIOD BY DIRECTION
22.5 DEGREES ABOUT 0. DEGREES AZIMUTH

STATION: A2044 34.46N/ 75.85W NO. CASES: 2607
% OF TOTAL: 4.5

HEIGHT IN METERS	PEAK PERIOD (IN SECONDS) 0.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.	19.0 LONGER	TOTAL
0.0-0.9	157	970	.	.	.	.	.	.	.	.	1127
1.0-1.9	.	313	2488	.	.	.	.	.	.	.	2801
2.0-2.9	.	3	484	5	.	.	.	.	.	.	492
3.0-3.9	.	.	11	8	.	.	.	.	.	.	19
4.0-4.9	.	.	.	10	.	.	.	.	.	.	10
5.0-5.9	.	.	.	8	.	.	.	.	.	.	8
6.0-6.9	.	.	.	.	.	.	.	.	.	.	0
7.0-7.9	.	.	.	.	.	.	.	.	.	.	0
8.0-8.9	.	.	.	.	.	.	.	.	.	.	0
9.0-9.9	.	.	.	.	.	.	.	.	.	.	0
10.0+	.	.	.	.	.	.	.	.	.	.	0
TOTAL	157	1286	2983	31	0	0	0	0	0	0	

MEAN HS(M) = 1.4 LARGEST HS(M) = 5.6 MEAN TP(SEC) = 4.6

SEAS SYSTEM REPORT NO. 810
PERCENT OCCURRENCE (X1000) OF HEIGHT AND PERIOD BY DIRECTION
22.5 DEGREES ABOUT 22.5 DEGREES AZIMUTH

STATION: A2044 34.46N/ 75.85W NO. CASES: 3076
% OF TOTAL: 5.3

HEIGHT IN METERS	PEAK PERIOD (IN SECONDS) 0.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.	19.0 LONGER	TOTAL
0.0-0.9	248	1242	3	273	6	.	.	.	.	.	1772
1.0-1.9	.	376	2354	85	20	.	.	.	.	.	2835
2.0-2.9	.	.	528	20	1	.	.	.	.	.	549
3.0-3.9	.	.	13	49	5	.	.	.	.	.	67
4.0-4.9	.	.	.	22	3	.	.	.	.	.	25
5.0-5.9	.	.	.	3	.	1	.	.	.	.	4
6.0-6.9	.	.	.	.	.	.	.	.	.	.	0
7.0-7.9	.	.	.	.	1	.	.	.	.	.	1
8.0-8.9	.	.	.	.	.	.	.	.	.	.	0
9.0-9.9	.	.	.	.	.	.	.	.	.	.	0
10.0+	.	.	.	.	.	.	.	.	.	.	0
TOTAL	248	1618	2898	452	36	1	0	0	0	0	

MEAN HS(M) = 1.3 LARGEST HS(M) = 7.1 MEAN TP(SEC) = 4.8

DATE: 08/20/85 PAGE: 9

SEAS SYSTEM REPORT NO. 810
PERCENT OCCURRENCE (X100) OF HEIGHT AND PERIOD
FOR ALL DIRECTIONS

STATION: A2044 34.46N/ 75.85W NO. CASES: 53440

HEIGHT IN METERS	PEAK PERIOD (IN SECONDS) 0.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0 LONGER	TOTAL
0.0-0.9	449	2459	129	745	39	29	11	.	.	.	3861
1.0-1.9	.	574	2288	686	161	91	30	.	.	.	3830
2.0-2.9	.	1	626	675	104	32	.	.	.	.	1438
3.0-3.9	.	.	33	529	28	16	.	.	.	.	606
4.0-4.9	.	.	1	108	80	2	.	.	.	.	191
5.0-5.9	.	.	.	3	36	.	.	.	.	.	39
6.0-6.9	.	.	.	.	9	.	.	.	.	.	9
7.0-7.9	.	.	.	.	1	3	1	.	.	.	5
8.0-8.9	.	.	.	.	.	.	.	.	.	.	0
9.0-9.9	.	.	.	.	.	.	.	.	.	.	0
10.0+	.	.	.	.	.	.	.	.	.	.	0
TOTAL	449	3034	3077	2746	458	173	42	0	0	0	

MEAN HS(M) = 1.5 LARGEST HS(M) = 8.4 MEAN TP(SEC) = 5.5

SEAS SYSTEM REPORT NO. 820
RETURN PERIOD TABLE

STATION: P1008 44.41N/125.29W

RETURN PERIOD (YRS)	HS(M)	UPPER LIMIT HS(M) ASSOCIATED WITH .75 FRACTILE	LOWER LIMIT HS(M) ASSOCIATED WITH .25 FRACTILE
50	13.4	14.4	12.7
20	12.1	13.4	11.8
10	11.4	12.6	11.1
5	10.8	11.9	10.4

SEAS SYSTEM REPORT NO. 830
MEAN WAVE HEIGHT (IN METERS) BY MONTH AND YEAR

STATION: P1008 44.41N 125.29W

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1956	5.1	4.0	4.3	3.4	2.9	2.4	2.0	1.9	1.9	3.2	3.5	4.4	3.3
1957	3.4	3.6	4.2	3.3	2.5	1.9	1.9	1.7	2.2	3.3	4.3	5.5	3.1
1958	6.4	5.3	3.8	4.2	2.6	1.8	2.2	2.1	2.3	3.2	4.5	5.1	3.6
1959	5.0	4.5	3.6	3.4	2.6	2.0	2.2	1.9	2.6	3.3	3.8	4.9	3.3
1960	4.7	5.2	3.3	3.5	2.6	2.1	2.0	2.1	2.0	3.6	4.9	4.8	3.4
1961	5.6	5.3	4.4	3.4	2.9	2.3	1.7	1.5	2.2	3.5	4.2	4.5	3.5
1962	3.9	3.8	3.5	3.1	2.1	2.1	1.9	2.2	2.1	3.9	5.1	5.3	3.1
1963	3.7	5.0	3.8	2.9	2.3	2.5	1.9	1.5	2.3	4.6	4.7	5.0	3.3
1964	6.2	3.8	3.9	3.4	2.4	2.2	2.3	2.2	2.1	3.1	4.4	5.1	3.3
1965	4.8	3.6	3.0	3.3	2.5	2.7	2.0	1.6	2.0	3.7	4.4	5.2	3.1
1966	5.7	4.2	4.1	2.6	2.8	2.0	2.0	2.0	2.3	3.1	3.7	5.4	3.3
1967	4.9	3.6	3.6	3.0	1.9	1.6	1.9	1.7	2.5	3.6	4.0	5.0	3.1
1968	4.7	4.7	3.9	2.8	2.0	1.9	1.9	1.8	1.9	3.4	4.4	5.1	3.2
1969	3.7	5.3	3.7	4.0	2.6	2.1	2.0	1.8	2.4	3.4	4.3	6.4	3.5
1970	5.5	4.8	4.1	3.3	2.4	2.0	2.1	2.1	2.2	3.3	4.6	5.4	3.3
1971	4.5	4.5	4.8	3.0	2.8	2.3	1.8	2.2	2.7	2.9	4.6	4.7	3.5
1972	5.3	4.6	4.6	4.1	2.7	2.7	2.5	2.0	2.4	2.6	5.1	5.2	3.7
1973	5.7	4.4	4.5	3.2	3.0	2.8	2.7	2.5	2.8	3.5	4.9	6.2	3.9
1974	5.2	4.8	4.7	4.0	3.3	2.7	2.0	2.0	2.1	3.0	4.8	5.4	3.7
1975	4.4	4.1	3.5	2.8	2.7	1.9	1.9	1.8	1.5	3.7	4.8	4.5	3.1
MEAN	4.9	4.5	4.0	3.4	2.6	2.2	2.0	1.9	2.2	3.4	4.5	5.2	

SEAS SYSTEM REPORT NO. 83
LARGEST WAVE HEIGHT (IN METERS) BY MONTH AND YEAR

STATION: P1008 44.41N/125.29W

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1956	9.7	6.4	7.4	6.1	4.2	3.5	3.6	2.8	2.9	5.1	4.6	8.1	
1957	5.9	7.5	6.1	4.5	4.0	2.9	3.1	2.3	4.2	5.6	5.6	7.8	
1958	9.0	7.7	6.3	6.9	4.2	2.5	3.7	3.1	4.1	5.2	6.7	8.1	
1959	9.2	7.6	5.2	5.4	4.5	3.1	3.4	3.1	3.8	6.2	7.1		
1960	9.1	8.9	5.9	4.9	3.5	3.2	3.9	3.4	3.3	5.2	5.1		
1961	9.3	6.9	6.7	5.0	3.9	3.6	2.5	2.7	3.1	6.3	7.3		
1962	6.4	5.9	5.6	4.2	3.1	3.7	2.9	3.4	5.6	7.8	8.1	11.2	
1963	6.6	7.9	7.0	4.0	4.0	4.2	3.0	2.6	3.4	8.8	6.8	9.2	
1964	10.1	6.1	6.9	5.2	5.2	3.2	3.3	2.8	3.5	4.3	6.8	8.4	
1965	7.9	5.9	4.1	4.5	4.2	4.0	2.9	2.5	3.2	6.7	8.4	9.6	
1966	9.4	6.4	5.5	4.2	3.6	3.0	2.8	2.7	3.6	4.9	6.1	9.2	
1967	8.5	4.9	5.8	4.7	2.9	2.9	2.6	2.3	4.3	5.9	6.5	7.5	
1968	10.0	7.7	5.0	3.8	3.0	2.8	2.7	2.6	3.3	5.2	6.5	9.4	
1969	6.9	8.3	5.5	6.5	4.1	3.0	2.9	2.4	4.3	5.2	8.4	11.7	
1970	8.7	6.6	6.4	5.2	3.2	3.2	2.9	3.2	3.2	6.5	7.1	9.2	
1971	10.0	6.9	7.2	6.1	5.3	3.8	3.1	3.2	3.2	5.2	8.5	9.2	
1972	10.9	7.5	6.6	6.7	3.5	3.7	4.4	3.2	4.2	4.2	6.5	11.4	
1973	8.7	7.3	6.3	4.9	4.7	4.5	3.7	3.2	4.1	5.4	8.4	10.3	
1974	11.5	7.2	6.4	6.2	4.5	4.5	3.6	3.2	3.1	4.1	8.2	9.2	
1975	6.5	6.3	6.3	4.3	3.8	3.4	2.4	3.2	3.1		7.1	8.1	

SEAS SYSTEM REPORT NO. 830
20-YEAR STATISTICS

STATION: P.008 44.41N 125.29W

MEAN SIGNIFICANT WAVE HEIGHT	(METERS)	3.4
MEAN PEAK WAVE PERIOD	(SECONDS)	10.9
MOST FREQUENT 22.5 DEGREE (CENTER) DIRECTION BAND	(DEGREES)	292.5
STANDARD DEVIATION OF WAVE HS	(METERS)	1.5
STANDARD DEVIATION OF WAVE TP	(SECONDS)	2.5
LARGEST WAVE HS	(METERS)	11.7
WAVE TP ASSOCIATED WITH LARGEST WAVE HS	(SECONDS)	14.3
AVERAGE DIRECTION ASSOCIATED WITH LARGEST WAVE HS	(DEGREES)	216.2

LARGEST WAVE HS OCCURRED AT 19:00 ON 12/12/84.

```
ATDT2160
CONNECT

1513600

 JEWES HIC TIMESHARING ON  06 JO 85 AT  7.695  CHANNEL 014. T..

USER ID    KOHHDSK
PASSWORD-
(TTHH2BCJULU
#USERS=025 SS=0148K %MEM USED=20 SYS=07?LK #PRO=2 000 WAIT 000

*PRN KOHHSEA..STALIST.K
DATE OF LAST CHANGE WAS 06/25 09
NEW LISTING (Y OR N)?
 Y
ENTER 0 IF STATION LIST IS TO BE PRINTED AT YOUR TERMINAL
ENTER 1 IF LIST IS TO BE PRINTED ON WES PRINTER
ENTER 2 IF LIST IS TO BE DIRECTED TO JOUT

ENTER USER NAME
 RAGSDALE
A BATCH RUN HAS BEEN INITIATED (SNUMB = 57428)
```

STATION DICTIONARY INDEX FILE LIS
REPORT NO. 901

LOCATION: ATLANTIC OCEAN PHASE: 1

STATION ID	LATITUDE #1 / LONGITUDE #1	LATITUDE #2 / LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A1001	41.87N 65.40W	N/A N/A	N/A	N/A
	354 KM FROM SHORE	DEPTH 1600 METERS		
A1002	41.72N 68.27W	N/A N/A	N/A	N/A
	157 KM FROM SHORE	DEPTH 30 METERS		
A1003	39.53N 70.42W	N/A N/A	N/A	N/A
	215 KM FROM SHORE	DEPTH 2500 METERS		
A1004	37.32N 72.63W	N/A N/A	N/A	N/A
	241 KM FROM SHORE	DEPTH 2800 METERS		
A1005	35.37N 72.31W	N/A N/A	N/A	N/A
	296 KM FROM SHORE	DEPTH 4100 METERS		
A1006	33.16N 74.40W	N/A N/A	N/A	N/A
	257 KM FROM SHORE	DEPTH 4400 METERS		
A1007	32.86N 76.76W	N/A N/A	N/A	N/A
	157 KM FROM SHORE	DEPTH 700 METERS		
A1008	30.62N 78.70W	N/A N/A	N/A	N/A
	255 KM FROM SHORE	DEPTH 820 METERS		
A1009	28.73N 78.34W	N/A N/A	N/A	N/A
	218 KM FROM SHORE	DEPTH 950 METERS		
A1010	26.83N 78.01W	N/A N/A	N/A	N/A
	11 KM FROM SHORE	DEPTH 2 METERS		
A1011	19.89N 66.40W	N/A N/A	N/A	N/A
	152 KM FROM SHORE	DEPTH 7000 METERS		
A1012	19.95N 64.27W	N/A N/A	N/A	N/A
	129 KM FROM SHORE	DEPTH 7000 METERS		
A1013	19.99N 62.15W	N/A N/A	N/A	N/A
	211 KM FROM SHORE	DEPTH 5000 METERS		

STATION DICTIONARY/INDEX FILE LIST
REPORT NO. 901

LOCATION: ATLANTIC OCEAN PHASE: 2

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
A2001	44.24N/ 67.71W	N/A	N/A	N/A	N/A
A2002	44.28N/ 67.02W	N/A	N/A	N/A	N/A
A2003	44.32N/ 66.32W	N/A	N/A	N/A	N/A
A2004	43.64N/ 69.02W	N/A	N/A	N/A	N/A
A2005	43.69N/ 68.33W	N/A	N/A	N/A	N/A
A2006	43.74N/ 67.65W	N/A	N/A	N/A	N/A
A2007	43.79N/ 66.96W	N/A	N/A	N/A	N/A
A2008	43.03N/ 70.31W	N/A	N/A	N/A	N/A
A2009	43.09N/ 69.63W	N/A	N/A	N/A	N/A
A2010	43.15N/ 68.95W	N/A	N/A	N/A	N/A
A2011	43.29N/ 66.90W	N/A	N/A	N/A	N/A
A2012	43.33N/ 66.21W	N/A	N/A	N/A	N/A
A2013	42.54N/ 70.23W	N/A	N/A	N/A	N/A
A2014	42.60N/ 69.55W	N/A	N/A	N/A	N/A
A2015	42.83N/ 66.16W	N/A	N/A	N/A	N/A
A2016	42.11N/ 69.48W	N/A	N/A	N/A	N/A
A2017	41.61N/ 69.40W	N/A	N/A	N/A	N/A
A2018	40.88N/ 71.96W	N/A	N/A	N/A	N/A
A2019	40.94N/ 71.30W	N/A	N/A	N/A	N/A
A2020	41.01N/ 70.65W	N/A	N/A	N/A	N/A
A2021	41.06N/ 69.99W	N/A	N/A	N/A	N/A

STATION DICTIONARY/INDEX FILE LIST
REPORT NO. 901

LOCATION: ATLANTIC OCEAN PHASE: 2

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
A2022	41.12N/ 69.33W	N/A	N/A	N/A	N/A
A2023	40.17N/ 73.82W	N/A	N/A	N/A	N/A
A2024	40.24N/ 73.17W	N/A	N/A	N/A	N/A
A2025	40.32N/ 72.52W	N/A	N/A	N/A	N/A
A2026	40.39N/ 71.87W	N/A	N/A	N/A	N/A
A2027	39.68N/ 73.72W	N/A	N/A	N/A	N/A
A2028	39.12N/ 74.26W	N/A	N/A	N/A	N/A
A2029	39.20N/ 73.62W	N/A	N/A	N/A	N/A
A2030	38.55N/ 74.79W	N/A	N/A	N/A	N/A
A2031	38.63N/ 74.16W	N/A	N/A	N/A	N/A
A2032	38.07N/ 74.69W	N/A	N/A	N/A	N/A
A2033	37.51N/ 75.21W	N/A	N/A	N/A	N/A
A2034	37.59N/ 74.59W	N/A	N/A	N/A	N/A
A2035	37.03N/ 75.11W	N/A	N/A	N/A	N/A
A2036	36.54N/ 75.02W	N/A	N/A	N/A	N/A
A2037	36.06N/ 74.92W	N/A	N/A	N/A	N/A
A2038	35.58N/ 74.83W	N/A	N/A	N/A	N/A
A2039	35.02N/ 75.34W	N/A	N/A	N/A	N/A
A2040	35.09N/ 74.74W	N/A	N/A	N/A	N/A
A2041	34.12N/ 77.64W	N/A	N/A	N/A	N/A
A2042	34.29N/ 77.04W	N/A	N/A	N/A	N/A

STATION DICTIONARY/INDEX FILE LIST
REPORT NO. 901

LOCATION: ATLANTIC OCEAN PHASE: 2

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
A2043	34.38N/ 76.45W	N/A	N/A	N/A	N/A
A2044	34.46N/ 75.85W	N/A	N/A	N/A	N/A
A2045	34.54N/ 75.25W	N/A	N/A	N/A	N/A
A2046	33.55N/ 78.72W	N/A	N/A	N/A	N/A
A2047	33.64N/ 78.13W	N/A	N/A	N/A	N/A
A2048	33.73N/ 77.54W	N/A	N/A	N/A	N/A
A2049	33.08N/ 78.62W	N/A	N/A	N/A	N/A
A2050	32.33N/ 80.26W	N/A	N/A	N/A	N/A
A2051	32.42N/ 79.68W	N/A	N/A	N/A	N/A
A2052	32.51N/ 79.10W	N/A	N/A	N/A	N/A
A2053	32.60N/ 78.51W	N/A	N/A	N/A	N/A
A2054	31.86N/ 80.15W	N/A	N/A	N/A	N/A
A2055	31.29N/ 80.62W	N/A	N/A	N/A	N/A
A2056	31.39N/ 80.01W	N/A	N/A	N/A	N/A
A2057	30.73N/ 81.08W	N/A	N/A	N/A	N/A
A2058	30.82N/ 80.51W	N/A	N/A	N/A	N/A
A2059	30.26N/ 80.98W	N/A	N/A	N/A	N/A
A2060	29.79N/ 80.88W	N/A	N/A	N/A	N/A
A2061	29.89N/ 80.31W	N/A	N/A	N/A	N/A
A2062	29.42N/ 80.21W	N/A	N/A	N/A	N/A
A2063	28.95N/ 80.11W	N/A	N/A	N/A	N/A

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LOCATION: ATLANTIC OCEAN PHASE: 2

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
A2064	28.48N/ 80.02W	N/A	N/A	N/A	N/A
A2065	28.01N/ 79.93W	N/A	N/A	N/A	N/A
A2066	27.54N/ 79.84W	N/A	N/A	N/A	N/A
A2067	27.07N/ 79.75W	N/A	N/A	N/A	N/A
A2068	27.15N/ 79.20W	N/A	N/A	N/A	N/A
A2069	27.23N/ 78.64W	N/A	N/A	N/A	N/A
A2070	26.60N/ 79.67W	N/A	N/A	N/A	N/A
A2071	26.13N/ 79.58W	N/A	N/A	N/A	N/A
A2072	26.20N/ 79.03W	N/A	N/A	N/A	N/A
A2073	25.66N/ 79.50W	N/A	N/A	N/A	N/A

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3001	44.82N/ 66.95W	44.70N/ 67.12W	10.00	54.00
	WEST QUADDY HEAD, MAINE			
A3002	44.70N/ 67.12W	44.60N/ 67.30W	10.00	59.00
	2 NAUTICAL MILES SOUTH OF MOOSE COVE, MAINE			
A3003	44.60N/ 67.30W	44.49N/ 67.62W	10.00	62.00
	CROSS ISLAND, MAINE			
A3004	44.49N/ 67.62W	44.42N/ 67.86W	10.00	68.00
	BLACK HEAD ISLAND, MAINE			
A3005	44.42N/ 67.86W	44.33N/ 68.03W	10.00	56.00
	BOIS BUBERT ISLAND, MAINE			
A3006	44.33N/ 68.03W	44.24N/ 68.20W	10.00	55.00
	SCHOODIC ISLAND, MAINE			
A3007	44.24N/ 68.20W	44.10N/ 68.33W	10.00	37.00
	BAKER ISLAND, MAINE			
A3008	44.10N/ 68.33W	44.04N/ 68.55W	10.00	63.00
	LONG ISLAND HEAD, MAINE			
A3009	44.04N/ 68.55W	43.86N/ 68.81W	10.00	50.00
	GREAT SPOON ISLAND, MAINE			
A3010	43.86N/ 68.81W	43.77N/ 69.32W	10.00	78.00
	WOODEN BALL ISLAND, MAINE			
A3011	43.77N/ 69.32W	43.68N/ 69.58W	10.00	73.00
	MOHEGAN ISLAND, MAINE			
A3012	43.68N/ 69.58W	43.70N/ 69.84W	10.00	90.00
	PUMPKIN ISLAND, MAINE			
A3013	43.70N/ 69.84W	43.68N/ 70.09W	10.00	90.00
	CAPE SMALL (SMALL POINT), MAINE			
A3014	43.68N/ 70.09W	43.54N/ 70.23W	10.00	30.00
	JEWELL ISLAND, MAINE			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3015	43.54N/ 70.23W	43.41N/ 70.38W	10.00	53.00
	RICHMOND ISLAND (ADAM HEAD), MAINE			
A3016	43.41N/ 70.38W	43.31N/ 70.56W	10.00	54.00
	HOYT NECK, MAINE			
A3017	43.31N/ 70.56W	43.16N/ 70.59W	10.00	14.00
	WELLS BEACH, MAINE			
A3018	43.16N/ 70.59W	43.04N/ 70.71W	10.00	33.00
	CAPE NEDDICK, MAINE			
A3019	43.04N/ 70.71W	42.89N/ 70.70W	10.00	28.00
	ODIORNES POINT, N.H.			
A3020	42.89N/ 70.70W	42.73N/ 70.78W	10.00	359.00
	HAMPTON HARBOR ENTRANCE, N.H.			
A3021	42.73N/ 70.78W	42.64N/ 70.57W	10.00	295.00
	PLUM ISLAND, MASS.			
A3022	42.64N/ 70.57W	42.56N/ 70.77W	10.00	49.00
	THACKER ISLAND, MASS.			
A3023	42.56N/ 70.77W	42.42N/ 70.90W	10.00	35.00
	GALES POINT (MANCHESTER), MASS.			
A3024	42.42N/ 70.90W	42.27N/ 70.82W	10.00	335.00
	EAST POINT (NAHANT), MASS.			
A3025	42.27N/ 70.82W	42.13N/ 70.68W	10.00	321.00
	NEAR NANTASKET BEACH, MASS.			
A3026	42.13N/ 70.68W	42.00N/ 70.58W	10.00	335.00
	HUMAROCK BEACH, MASS.			
A3027	42.00N/ 70.58W	42.08N/ 70.17W	10.00	244.00
	ROCKY POINT (PLYMOUTH BAY), MASS.			
A3028	42.08N/ 70.17W	41.97N/ 70.00W	10.00	308.00
	NEAR RACE POINT (CAPE COD), MASS.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3029	41.97N/ 70.00W	41.82N/ 69.94W	10.00	343.00
	HIGHLANDS (CAPE COD), MASS.			
A3030	41.82N/ 69.94W	41.65N/ 69.95W	10.00	1.00
	.5 NAUTICAL MILE NORTH OF NAUSET HARBOR ENTRANCE, MASS.			
A3031	41.65N/ 69.95W	41.37N/ 70.02W	10.00	17.00
	.5 NAUTICAL MILE NORTH OF CHATHAM HARBOR ENTRANCE, MASS.			
A3032	41.37N/ 70.02W	41.28N/ 69.97W	10.00	326.00
	GREAT POINT (NANTUCKET ISLAND), MASS.			
A3033	41.28N/ 69.97W	41.26N/ 70.16W	10.00	98.00
	SANKATY HEAD (NANTUCKET ISLAND), MASS.			
A3034	41.26N/ 70.16W	41.35N/ 70.46W	10.00	108.00
	MADAKET (NANTUCKET ISLAND), MASS.			
A3035	41.35N/ 70.46W	41.35N/ 70.66W	10.00	83.00
	WASQUE POINT (CHAPPAQUIDDICK ISLAND), MASS.			
A3036	41.35N/ 70.66W	41.25N/ 70.82W	10.00	48.00
	NEAR TISBURY GREAT POND (MARTHA'S VINEYARD), MASS.			
A3037	41.25N/ 70.82W	41.41N/ 70.95W	10.00	143.00
	NOMANS LAND ISLAND, MASS.			
A3038	41.41N/ 70.95W	41.46N/ 71.17W	10.00	99.00
	CUTTYHUNK ISLAND, MASS.			
A3039	41.46N/ 71.17W	41.45N/ 71.39W	10.00	88.00
	WARREN POINT, R.I.			
A3040	41.45N/ 71.39W	41.36N/ 71.48W	10.00	43.00
	BEAVERTAIL POINT (CONANICUT ISLAND), R.I.			
A3041	41.36N/ 71.48W	41.15N/ 71.55W	10.00	11.00
	POINT JUDITH, R.I.			
A3042	41.15N/ 71.55W	41.07N/ 71.86W	10.00	70.00
	SOUTHEAST POINT (BLOCK ISLAND), N.Y.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3043	41.07N/ 71.86W	40.99N/ 72.05W	10.00	67.00
	MONTAUK POINT (LONG ISLAND), N.Y.			
A3044	40.99N/ 72.05W	40.92N/ 72.25W	10.00	68.00
	HITHER HILLS SAINT PARK BEACH (LONG ISLAND), N.Y.			
A3045	40.92N/ 72.25W	40.85N/ 72.45W	10.00	65.00
	1 NAUTICAL MILE SOUTH OF GEORGICA POND (LONG ISLAND), N.Y.			
A3046	40.85N/ 72.45W	40.79N/ 72.65W	10.00	69.00
	1.5 NAUTICAL MILES NORTH OF SHINNECOCK INLET, N.Y.			
A3047	40.79N/ 72.65W	40.74N/ 72.86W	10.00	68.00
	WESTHAMPTON BEACH (LONG ISLAND), N.Y.			
A3048	40.74N/ 72.86W	40.67N/ 73.05W	10.00	67.00
	GREAT SOUTH BEACH (FIRE ISLAND), N.Y.			
A3049	40.67N/ 73.05W	40.62N/ 73.42W	10.00	77.00
	GREAT SOUTH BEACH (FIRE ISLAND), N.Y.			
A3050	40.62N/ 73.42W	40.60N/ 73.48W	10.00	74.00
	2 NAUTICAL MILES NORTH OF DEMOCRAT POINT (FIRE ISLAND), N.Y.			
A3051	40.60N/ 73.48W	40.58N/ 73.70W	10.00	90.00
	TOBAY BEACH, N.Y.			
A3052	40.58N/ 73.70W	40.56N/ 73.91W	10.00	90.00
	LONG BEACH, N.Y.			
A3053	40.56N/ 73.91W	40.40N/ 73.94W	10.00	19.00
	1.5 NAUTICAL MILES NORTH OF ROCKAWAY POINT, N.Y.			
A3054	40.40N/ 73.94W	40.23N/ 74.00W	10.00	4.00
	SANDY HOOK, N.J.			
A3055	40.23N/ 74.00W	40.07N/ 74.04W	10.00	13.00
	2.5 NAUTICAL MILES NORTH OF SHARK RIVER INLET, N.J.			
A3056	40.07N/ 74.04W	39.90N/ 74.08W	10.00	9.00
	BAY HEAD, N.J.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3057	39.90N/ 74.08W	39.74N/ 74.12W	10.00	12.00
	SEASIDE PARK, N.J.			
A3058	39.74N/ 74.12W	39.59N/ 74.23W	10.00	12.00
	1 NAUTICAL MILE SOUTH OF BARNEGAT INLET, N.J.			
A3059	39.59N/ 74.23W	39.46N/ 74.32W	10.00	33.00
	SPRAY BEACH, N.J.			
A3060	39.46N/ 74.32W	39.34N/ 74.47W	10.00	34.00
	BETWEEN BRIGARTINE AND LITTLE EGG INLETS, N.J.			
A3061	39.34N/ 74.47W	39.23N/ 74.63W	10.00	54.00
	ATLANTIC CITY, N.J.			
A3062	39.23N/ 74.63W	39.09N/ 74.73W	10.00	31.00
	PECK BEACH, N.J.			
A3063	39.09N/ 74.73W	38.95N/ 74.85W	10.00	35.00
	SEVEN MILE BEACH, N.J.			
A3064	38.95N/ 74.85W	38.78N/ 75.09W	10.00	51.00
	TWO MILE BEACH, N.J.			
A3065	38.78N/ 75.09W	38.62N/ 75.06W	10.00	353.00
	CAPE HENLOPEN, DEL.			
A3066	38.62N/ 75.06W	38.46N/ 75.05W	10.00	357.00
	NEAR INDIAN RIVER INLET, DEL.			
A3067	38.46N/ 75.05W	38.30N/ 75.11W	10.00	12.00
	NEAR FENWICH ISLAND LIGHT, DEL.			
A3068	38.30N/ 75.11W	38.14N/ 75.17W	10.00	27.00
	1.5 NAUTICAL MILES SOUTH OF OCEAN CITY, MD.			
A3069	38.14N/ 75.17W	37.99N/ 75.27W	10.00	26.00
	ASSATEAGUE ISLAND (NORTH), MD.			
A3070	37.99N/ 75.27W	37.86N/ 75.36W	10.00	35.00
	ASSATEAGUE ISLAND (SOUTH), VA.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 / LONGITUDE #1	LATITUDE #2 / LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3071	37.86N/ 75.36W	37.77N/ 75.54W	10.00	53.00
	ASSATEAGUE ISLAND (SOUTH), VA.			
A3072	37.77N/ 75.54W	37.61N/ 75.61W	10.00	22.00
	.5 NAUTICAL MILE SOUTH OF GARGATHY INLET, VA.			
A3073	37.61N/ 75.61W	37.45N/ 75.66W	10.00	20.00
	CEDAR ISLAND, VA.			
A3074	37.45N/ 75.66W	37.31N/ 75.77W	10.00	28.00
	HOG ISLAND, VA.			
A3075	37.31N/ 75.77W	37.15N/ 75.86W	10.00	30.00
	COBB ISLAND, VA.			
A3076	37.15N/ 75.86W	36.92N/ 75.99W	10.00	28.00
	SMITH ISLAND, VA.			
A3077	36.92N/ 75.99W	36.73N/ 75.94W	10.00	342.00
	CAPE HENRY, VA.			
A3078	36.73N/ 75.94W	36.57N/ 75.87W	10.00	339.00
	SAND BRIDGE, VA.			
A3079	36.57N/ 75.87W	36.41N/ 75.83W	10.00	348.00
	FALSE CAPE, VA.			
A3080	36.41N/ 75.83W	36.25N/ 75.71W	10.00	346.00
	COROLLA, N.C.			
A3081	36.25N/ 75.71W	36.09N/ 75.70W	10.00	340.00
	DUCK, N.C.			
A3082	36.09N/ 75.70W	35.94N/ 75.61W	10.00	332.00
	KITTY HAWK BEACH, N.C.			
A3083	35.94N/ 75.61W	35.81N/ 75.55W	10.00	335.00
	NAGS HEAD, N.C.			
A3084	35.81N/ 75.55W	35.66N/ 75.48W	10.00	339.00
	1.5 NAUTICAL MILES NORTH OF OREGON INLET, BODIE ISLAND, N.C.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3085	35.66N/ 75.48W	35.49N/ 75.48W	10.00	2.00
	3.5 NAUTICAL MILES NORTH OF RODANTHE (HATTERAS ISLAND), N.C.			
A3086	35.49N/ 75.48W	35.32N/ 75.51W	10.00	12.00
	3 NAUTICAL MILES SOUTH OF SALVO (HATTERAS ISLAND), N.C.			
A3087	35.32N/ 75.51W	35.25N/ 75.48W	10.00	8.00
	2 NAUTICAL MILES SOUTH OF AVON (HATTERAS ISLAND), N.C.			
A3088	35.25N/ 75.48W	35.22N/ 75.66W	10.00	76.00
	TIP OF CAPE HATTERAS TO 8 NAUTICAL MILES WEST SOUTHWEST			
A3089	35.22N/ 75.66W	35.15N/ 75.85W	10.00	68.00
	7 NAUTICAL MILES SOUTHWEST OF CAPE HATTERAS (ISLAND), N.C.			
A3090	35.15N/ 75.85W	35.07N/ 76.00W	10.00	54.00
	4 NAUTICAL MILES SOUTH OF HATTERAL INLET (OCRACOKE), N.C.			
A3091	35.07N/ 76.00W	34.97N/ 76.16W	10.00	52.00
	OCRACOKE, N.C.			
A3092	34.97N/ 76.16W	34.86N/ 76.30W	10.00	48.00
	PORTSMOUTH ISLAND, N.C.			
A3093	34.86N/ 76.30W	34.74N/ 76.43W	10.00	43.00
	1 NAUTICAL MILE NORTH OF DRUM INLET, N.C.			
A3094	34.74N/ 76.43W	34.59N/ 76.54W	10.00	34.00
	CORE BANKS, N.C.			
A3095	34.59N/ 76.54W	34.68N/ 76.70W	10.00	121.00
	CAPE LOOKOUT, N.C.			
A3096	34.68N/ 76.70W	34.68N/ 76.90W	10.00	87.00
	1 NAUTICAL MILE SOUTH OF BEAUFORT INLET, N.C.			
A3097	34.68N/ 76.90W	34.64N/ 77.09W	10.00	75.00
	BOGUE BANKS, N.C.			
A3098	34.64N/ 77.09W	34.57N/ 77.27W	10.00	64.00
	.5 NAUTICAL MILE NORTH OF BOGUE INLET, N.C.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3099	34.57N/ 77.27W	34.48N/ 77.44W	10.00	56.00
	ONSLOW BEACH, N.C.			
A3100	34.48N/ 77.44W	34.38N/ 77.61W	10.00	54.00
	SEA HAVEN BEACH, N.C.			
A3101	34.38N/ 77.61W	34.23N/ 77.75W	10.00	44.00
	TOPSAIL BEACH, N.C.			
A3102	34.23N/ 77.75W	34.12N/ 77.85W	10.00	29.00
	FIGURE EIGHT ISLAND, N.C.			
A3103	34.12N/ 77.85W	33.96N/ 77.92W	10.00	20.00
	2.5 NAUTICAL MILES NORTH OF CAROLINA BEACH INLET, N.C.			
A3104	33.96N/ 77.92W	33.85N/ 77.17W	10.00	19.00
	KURE BEACH, N.C.			
A3105	33.85N/ 77.17W	33.91N/ 78.11W	10.00	118.00
	TIP OF CAPE FEAR TO 8 NAUTICAL MILES EAST NORTHEAST OF CAPE			
A3106	33.91N/ 78.11W	33.91N/ 78.31W	10.00	90.00
	5.5 NAUTICAL MILES WEST OF CAPE FEAR RIVER ENTRANCE, N.C.			
A3107	33.91N/ 78.31W	33.87N/ 78.50W	10.00	74.00
	HOLDEN BEACH, N.C.			
A3108	33.87N/ 78.50W	33.81N/ 78.69W	10.00	70.00
	SUNSET BEACH, N.C.			
A3109	33.81N/ 78.69W	33.71N/ 78.85W	10.00	56.00
	CRESCENT BEACH, S.C.			
A3110	33.71N/ 78.85W	33.59N/ 78.99W	10.00	41.00
	MYRTLE BEACH, S.C.			
A3111	33.59N/ 78.99W	33.45N/ 79.10W	10.00	37.00
	SURFSIDE BEACH, S.C.			
A3112	33.45N/ 79.10W	33.30N/ 79.17W	10.00	20.00
	LITCHFIELD BEACH, S.C.			

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STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3113	33.30N/ 79.17W	33.14N/ 79.24W	10.00	17.00
	NORTH ISLAND, S.C.			
A3114	33.14N/ 79.24W	33.00N/ 79.36W	10.00	36.00
	SANTEE POINT, S.C.			
A3115	33.00N/ 79.36W	32.92N/ 79.58W	10.00	65.00
	CAPE ROMAIN, S.C.			
A3116	32.92N/ 79.58W	32.81N/ 79.72W	10.00	50.00
	BULL ISLAND, S.C.			
A3117	32.81N/ 79.72W	32.71N/ 79.88W	10.00	53.00
	ISLE OF PALMS, S.C.			
A3118	32.71N/ 79.88W	32.61N/ 80.04W	10.00	45.00
	MORRIS ISLAND (2 NAUTICAL MILES SOUTH OF CHARLESTON			
A3119	32.61N/ 80.04W	32.56N/ 80.22W	10.00	71.00
	KIAWAH ISLAND, S.C.			
A3120	32.56N/ 80.22W	32.39N/ 80.43W	10.00	49.00
	BOTANY BAY ISLAND, S.C.			
A3121	32.39N/ 80.43W	32.27N/ 80.58W	10.00	48.00
	HUNTING ISLAND, S.C.			
A3122	32.27N/ 80.58W	32.16N/ 80.72W	10.00	49.00
	BULL POINT AT PORT ROYAL SOUND, S.C.			
A3123	32.16N/ 80.72W	32.02N/ 80.83W	10.00	34.00
	HILTON HEAD ISLAND, S.C.			
A3124	32.02N/ 80.83W	31.89N/ 80.96W	10.00	37.00
	TYBEE ISLAND, GA.			
A3125	31.89N/ 80.96W	31.76N/ 81.09W	10.00	42.00
	WASSAW ISLAND, GA.			
A3126	31.76N/ 81.09W	31.60N/ 81.15W	10.00	18.00
	OSSABAW ISLAND, GA.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3127	31.60N/ 81.15W	31.50N/ 81.23W	10.00	25.00
	SAINT CATHERINES ISLAND, GA.			
A3128	31.50N/ 81.23W	31.29N/ 81.28W	10.00	21.00
	BLACKBEARD ISLAND, GA.			
A3129	31.29N/ 81.28W	31.14N/ 81.38W	10.00	24.00
	LITTLE SAINT SIMONS ISLAND, GA.			
A3130	31.14N/ 81.38W	30.98N/ 81.41W	10.00	14.00
	SAINT SIMONS ISLAND, GA.			
A3131	30.98N/ 81.41W	30.81N/ 81.45W	10.00	9.00
	LITTLE CUMBERLAND ISLAND, GA.			
A3132	30.81N/ 81.45W	30.64N/ 81.43W	10.00	357.00
	CUMBERLAND ISLAND, GA.			
A3133	30.64N/ 81.43W	30.48N/ 81.41W	10.00	352.00
	FERNANDINA BEACH, FLA.			
A3134	30.48N/ 81.41W	30.31N/ 81.39W	10.00	350.00
	LITTLE TALBOT ISLAND, FLA.			
A3135	30.31N/ 81.39W	30.15N/ 81.35W	10.00	348.00
	JACKSONVILLE BEACH, FLA.			
A3136	30.15N/ 81.35W	29.99N/ 81.31W	10.00	349.00
	MICKLER LANDING, FLA.			
A3137	29.99N/ 81.31W	29.82N/ 81.26W	10.00	344.00
	5 NAUTICAL MILES NORTH OF SAINT AUGUSTINE, FLA.			
A3138	29.82N/ 81.26W	29.66N/ 81.21W	10.00	346.00
	SAINT AUGUSTINE BEACH, FLA.			
A3139	29.66N/ 81.21W	29.51N/ 81.14W	10.00	340.00
	3 NAUTICAL MILES SOUTH OF MATANZAS INLET, FLA.			
A3140	29.51N/ 81.14W	29.35N/ 81.07W	10.00	338.00
	FLAGLER BEACH, FLA.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3141	29.35N/ 81.07W	29.20N/ 81.00W	10.00	337.00
	ORMOND BEACH, FLA.			
A3142	29.20N/ 81.00W	29.05N/ 80.90W	10.00	334.00
	SEABREEZE, FLA.			
A3143	29.05N/ 80.90W	28.90N/ 80.81W	10.00	331.00
	NEW SMYRNA BEACH, FLA.			
A3144	28.90N/ 80.81W	28.76N/ 80.71W	10.00	330.00
	ELDORA, FLA.			
A3145	28.76N/ 80.71W	28.62N/ 80.60W	10.00	326.00
	MOSQUITO LAGOON BEACH, FLA.			
A3146	28.62N/ 80.60W	28.47N/ 80.53W	10.00	337.00
	TITUSVILLE BEACH, FLA.			
A3147	28.47N/ 80.53W	28.31N/ 80.61W	10.00	24.00
	CAPE CANAVERAL, FLA.			
A3148	28.31N/ 80.61W	28.15N/ 80.58W	10.00	354.00
	COCOA BEACH, FLA.			
A3149	28.15N/ 80.58W	27.99N/ 80.52W	10.00	340.00
	SATELLITE BEACH, FLA.			
A3150	27.99N/ 80.52W	27.85N/ 80.44W	10.00	334.00
	MELBOURNE BEACH, FLA.			
A3151	27.85N/ 80.44W	27.68N/ 80.37W	10.00	337.00
	1.5 NAUTICAL MILES SOUTH OF SEBASTIAN INLET, FLA.			
A3152	27.68N/ 80.37W	27.52N/ 80.31W	10.00	337.00
	RIOMAR, FLA.			
A3153	27.52N/ 80.31W	27.37N/ 80.25W	10.00	339.00
	3 NAUTICAL MILES NORTH OF FORT PIERCE INLET, FLA.			
A3154	27.37N/ 80.25W	27.21N/ 80.17W	10.00	338.00
	HUTCHINSON ISLAND, FLA.			

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LOCATION: ATLANTIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
A3155	27.21N/ 80.17W	27.06N/ 80.11W	10.00	338.00
	2.5 NAUTICAL MILES NORTH OF SAINT LUCIE INLET, FLA.			
A3156	27.06N/ 80.11W	26.89N/ 80.06W	10.00	342.00
	JUPITER ISLAND, FLA.			
A3157	26.89N/ 80.06W	26.73N/ 80.03W	10.00	347.00
	3 NAUTICAL MILES SOUTH OF JUPITER INLET, FLA.			
A3158	26.73N/ 80.03W	26.56N/ 80.04W	10.00	1.00
	PALM BEACH, FLA.			
A3159	26.56N/ 80.04W	26.39N/ 80.07W	10.00	12.00
	DELRAY BEACH, FLA.			
A3160	26.39N/ 80.07W	26.23N/ 80.09W	10.00	7.00
	BOCA RATON, FLA.			
A3161	26.23N/ 80.09W	26.06N/ 80.11W	10.00	8.00
	POMPANO BEACH, FLA.			
A3162	26.06N/ 80.11W	25.90N/ 80.12W	10.00	7.00
	HOLLYWOOD BEACH, FLA.			
A3163	25.90N/ 80.12W	25.72N/ 80.15W	10.00	6.00
	MIAMI BEACH, FLA.			
A3164	25.72N/ 80.15W	25.52N/ 80.17W	10.00	11.00
	KEY BISCAYNE, FLA.			
A3165	25.52N/ 80.17W	25.37N/ 80.24W	10.00	18.00
	BOCA CHITA KEY, FLA.			
A3166	25.37N/ 80.24W	25.22N/ 80.33W	10.00	30.00
	OLD RHODES KEY, FLA.			

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LOCATION: PACIFIC OCEAN PHASE: 1

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
P1001	32.20N/118.64W	N/A	N/A	N/A	N/A
P1002	33.03N/120.80W	N/A	N/A	N/A	N/A
P1003	33.83N/123.00W	N/A	N/A	N/A	N/A
P1004	36.21N/124.42W	N/A	N/A	N/A	N/A
P1005	38.63N/125.86W	N/A	N/A	N/A	N/A
P1006	41.08N/127.34W	N/A	N/A	N/A	N/A
P1007	42.76N/126.36W	N/A	N/A	N/A	N/A
P1008	44.41N/125.29W	N/A	N/A	N/A	N/A
P1009	46.94N/126.73W	N/A	N/A	N/A	N/A
P1010	49.48N/128.23W	N/A	N/A	N/A	N/A
P1011	50.30N/131.07W	N/A	N/A	N/A	N/A
P1012	51.05N/134.00W	N/A	N/A	N/A	N/A
P1013	53.55N/135.97W	N/A	N/A	N/A	N/A
P1014	56.05N/138.14W	N/A	N/A	N/A	N/A
P1015	58.53N/140.57W	N/A	N/A	N/A	N/A
P1016	59.05N/144.30W	N/A	N/A	N/A	N/A
P1017	57.50N/148.78W	N/A	N/A	N/A	N/A
P1018	55.79N/152.87W	N/A	N/A	N/A	N/A
P1019	53.95N/156.60W	N/A	N/A	N/A	N/A
P1020	54.00N/160.00W	N/A	N/A	N/A	N/A
P1021	51.96N/163.25W	N/A	N/A	N/A	N/A

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LOCATION: PACIFIC OCEAN PHASE: 1

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
P1022	51.32N/166.48W	N/A	N/A	N/A	N/A
P1023	51.60N/169.69W	N/A	N/A	N/A	N/A
P1024	51.29N/172.86W	N/A	N/A	N/A	N/A
P1025	50.90N/175.98W	N/A	N/A	N/A	N/A
P1026	50.42N/179.05W	N/A	N/A	N/A	N/A
P1027	49.87N/177.95E	N/A	N/A	N/A	N/A
P1028	51.05N/174.00E	N/A	N/A	N/A	N/A
P1029	17.90N/153.69W	N/A	N/A	N/A	N/A
P1030	19.89N/153.62W	N/A	N/A	N/A	N/A
P1031	21.94N/155.69W	N/A	N/A	N/A	N/A
P1032	21.99N/157.84W	N/A	N/A	N/A	N/A
P1033	22.00N/160.00W	N/A	N/A	N/A	N/A
P1034	20.00N/160.00W	N/A	N/A	N/A	N/A
P1035	17.99N/157.90W	N/A	N/A	N/A	N/A

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LOCATION: PACIFIC OCEAN PHASE: 2

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
P2001	32.36N/117.89W	N/A	N/A	N/A	N/A
P2002	32.58N/118.43W	N/A	N/A	N/A	N/A
P2003	32.79N/118.96W	N/A	N/A	N/A	N/A
P2004	33.00N/119.50W	N/A	N/A	N/A	N/A
P2005	33.21N/120.04W	N/A	N/A	N/A	N/A
P2006	33.59N/119.83W	N/A	N/A	N/A	N/A
P2007	33.81N/120.38W	N/A	N/A	N/A	N/A
P2008	34.01N/120.92W	N/A	N/A	N/A	N/A
P2009	34.22N/121.48W	N/A	N/A	N/A	N/A
P2010	34.61N/121.26W	N/A	N/A	N/A	N/A
P2011	34.82N/121.82W	N/A	N/A	N/A	N/A
P2012	35.21N/121.60W	N/A	N/A	N/A	N/A
P2013	35.41N/122.16W	N/A	N/A	N/A	N/A
P2014	35.81N/121.94W	N/A	N/A	N/A	N/A
P2015	36.02N/122.50W	N/A	N/A	N/A	N/A
P2016	36.22N/123.06W	N/A	N/A	N/A	N/A
P2017	36.62N/122.84W	N/A	N/A	N/A	N/A
P2018	36.82N/123.41W	N/A	N/A	N/A	N/A
P2019	37.22N/123.18W	N/A	N/A	N/A	N/A
P2020	37.62N/122.95W	N/A	N/A	N/A	N/A
P2021	37.83N/123.53W	N/A	N/A	N/A	N/A
P2022	38.04N/124.11W	N/A	N/A	N/A	N/A
P2023	38.44N/123.88W	N/A	N/A	N/A	N/A

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LOCATION: PACIFIC OCEAN PHASE: 2

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
P2024	38.65N/124.46W	N/A	N/A	N/A	N/A
P2025	38.85N/125.05W	N/A	N/A	N/A	N/A
P2026	39.26N/124.81W	N/A	N/A	N/A	N/A
P2027	39.67N/124.57W	N/A	N/A	N/A	N/A
P2028	39.87N/125.17W	N/A	N/A	N/A	N/A
P2029	40.28N/124.93W	N/A	N/A	N/A	N/A
P2030	40.49N/125.53W	N/A	N/A	N/A	N/A
P2031	40.90N/125.28W	N/A	N/A	N/A	N/A
P2032	41.31N/125.03W	N/A	N/A	N/A	N/A
P2033	41.72N/124.78W	N/A	N/A	N/A	N/A
P2034	41.93N/125.39W	N/A	N/A	N/A	N/A
P2035	42.34N/125.13W	N/A	N/A	N/A	N/A
P2036	42.55N/125.74W	N/A	N/A	N/A	N/A
P2037	42.96N/125.48W	N/A	N/A	N/A	N/A
P2038	43.37N/125.21W	N/A	N/A	N/A	N/A
P2039	43.78N/124.94W	N/A	N/A	N/A	N/A
P2040	44.19N/124.66W	N/A	N/A	N/A	N/A
P2041	44.41N/125.29W	N/A	N/A	N/A	N/A
P2042	44.82N/125.01W	N/A	N/A	N/A	N/A
P2043	45.23N/124.72W	N/A	N/A	N/A	N/A
P2044	45.15N/125.36W	N/A	N/A	N/A	N/A
P2045	45.86N/125.07W	N/A	N/A	N/A	N/A
P2046	46.27N/124.77W	N/A	N/A	N/A	N/A

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LOCATION: PACIFIC OCEAN PHASE: 2

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2		WATER DEPTH	SHORE ANGLE
P2047	46.50N/125.42W	N/A	N/A	N/A	N/A
P2048	46.91N/125.11W	N/A	N/A	N/A	N/A
P2049	47.14N/125.77W	N/A	N/A	N/A	N/A
P2050	47.55N/125.46W	N/A	N/A	N/A	N/A
P2051	47.77N/126.12W	N/A	N/A	N/A	N/A
P2052	48.19N/125.81W	N/A	N/A	N/A	N/A
P2053	48.60N/125.50W	N/A	N/A	N/A	N/A

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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3001	48.37N/124.75W	48.30N/124.70W	10.00	160.00
	CAPE FLATTERY, WA			
P3002	48.30N/124.70W	48.17N/124.75W	10.00	192.00
	PORTAGE HEAD,WA			
P3003	48.17N/124.75W	48.06N/124.70W	10.00	166.00
	CAPE ALAVA, WA			
P3004	48.06N/124.70W	47.96N/124.68W	10.00	168.00
	ABOUT 8 NAUTICAL MILES NORTH OF CAPE JOHNSON, WA			
P3005	47.96N/124.68W	47.86N/124.61W	10.00	155.00
	CAPE JOHNSON, WA			
P3006	47.86N/124.61W	47.83N/124.55W	10.00	125.00
	ABOUT 6 NAUTICAL MILES NORTH OF TOLEAK POINT, WA			
P3007	47.83N/124.55W	47.76N/124.48W	10.00	148.00
	TOLEAK POINT,WA			
P3008	47.76N/124.48W	47.70N/124.43W	10.00	149.00
	HOH HEAD, WA			
P3009	47.70N/124.43W	47.60N/124.40W	10.00	166.00
	ABOUT 7 NAUTICAL MILES SOUTH OF HOH HEAD, WA			
P3010	47.60N/124.40W	47.48N/124.35W	10.00	171.00
	ABOUT 22 NAUTICAL MILES NORTH OF CAPE ELIZABETH, WA			
P3011	47.48N/124.35W	47.35N/124.33W	10.00	171.00
	ABOUT 12 NAUTICAL MILES NORTH OF CAPE ELIZABETH, WA			
P3012	51.05N/124.33W	47.30N/124.28W	10.00	148.00
	CAPE ELIZABETH, WA			
P3013	47.30N/124.28W	47.23N/124.23W	10.00	148.00
	POINT GRENVILLE, WA			
P3014	47.23N/124.23W	47.13N/124.20W	10.00	167.00
	MOCLIPS RIVER, WA			

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STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3015	47.13N/124.20W	47.01N/124.18W	10.00	173.00
	COPALIS HEAD, WA			
P3016	47.01N/124.18W	46.93N/124.18W	10.00	174.00
	ABOUT 10 NAUTICAL MILES SOUTH OF COPALIS HEAD, WA			
P3017	46.90N/124.15W	46.78N/124.11W	10.00	166.00
	POINT CHEHALIS, WA			
P3018	46.78N/124.11W	46.71N/124.10W	10.00	174.00
	ABOUT 6 NAUTICAL MILES NORTH OF CAPE SHOALWATER, WA			
P3019	46.61N/124.10W	46.50N/124.08W	10.00	176.00
	LEADBETTER POINT, WA			
P3020	46.50N/124.08W	46.40N/124.08W	10.00	178.00
	OCEAN PARK, WA			
P3021	46.40N/124.08W	46.26N/124.10W	10.00	190.00
	ABOUT 9 NAUTICAL MILES SOUTH OF OCEAN PARK,WA			
P3022	46.21N/124.01W	46.10N/123.95W	10.00	158.00
	ABOUT 20 NAUTICAL MILES NORTH OF SEASIDE, WA			
P3023	46.10N/123.95W	46.00N/123.93W	10.00	173.00
	ABOUT 10 NAUTICAL MILES NORTH OF SEASIDE, WA			
P3024	46.00N/123.93W	45.95N/124.00W	10.00	192.00
	SEASIDE, WA			
P3025	45.95N/124.00W	45.88N/123.96W	10.00	190.00
	TILLAMOOK HEAD, WA			
P3026	45.88N/123.96W	45.76N/124.00W	10.00	184.00
	ABOUT 5 NAUTICAL MILES SOUTH OF TILLAMOOK HEAD, WA			
P3027	45.76N/124.00W	45.65N/123.95W	10.00	168.00
	CAPE FALCON,WA			
P3028	45.65N/123.95W	45.53N/123.96W	10.00	187.00
	ABOUT 10 NAUTICAL MILES SOUTH OF CAPE FALCON, WA			

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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3029	45.53N/123.96W	45.41N/123.96W	10.00	180.00
	CAPE MEARES, OR			
P3030	45.41N/123.96W	45.30N/123.96W	10.00	180.00
	ABOUT 6 NAUTICAL MILES NORTH OF CAPE LOOKOUT, OR			
P3031	45.30N/123.96W	45.18N/123.98W	10.00	180.00
	ABOUT 4 NAUTICAL MILES SOUTH OF CAPE LOOKOUT, OR			
P3032	45.18N/123.98W	45.06N/124.01W	10.00	192.00
	ABOUT 10 NAUTICAL MILES NORTH OF CASCADE HEAD, OR			
P3033	45.06N/124.01W	44.93N/124.03W	10.00	183.00
	CASCADE HEAD, OR			
P3034	44.93N/124.03W	44.83N/124.08W	10.00	194.00
	ABOUT 10 NAUTICAL MILES SOUTH OF CASCADE HEAD, OR			
P3035	44.83N/124.08W	44.70N/124.08W	10.00	180.00
	ABOUT 4 NAUTICAL MILES NORTH OF CAPE FOULWEATHER, OR			
P3036	44.70N/124.08W	44.58N/124.08W	10.00	181.00
	NORTH OF YAQUINA HEAD, OR			
P3037	44.58N/124.08W	44.46N/124.08W	10.00	184.00
	ABOUT 7 NAUTICAL MILES SOUTH OF YAQUINA HEAD, OR			
P3038	44.46N/124.08W	44.35N/124.10W	10.00	185.00
	ABOUT 17 NAUTICAL MILES SOUTH OF YAQUINA HEAD, OR			
P3039	44.35N/124.10W	44.21N/124.11W	10.00	182.00
	ABOUT 17 NAUTICAL MILES NORTH OF HECETA HEAD, OR			
P3040	44.21N/124.11W	44.10N/124.13W	10.00	181.00
	ABOUT 7 MILES NORTH OF HECETA HEAD, OR			
P3041	44.10N/124.13W	43.98N/124.15W	10.00	184.00
	SOUTH OF HECETA HEAD, OR			
P3042	43.98N/124.15W	43.86N/124.16W	10.00	185.00
	SOUTH OF FLORENCE, OR			

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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3043	43.86N/124.16W	43.75N/124.20W	10.00	187.00
	ABOUT 10 NAUTICAL MILES SOUTH OF FLORENCE, OR			
P3044	43.75N/124.20W	43.61N/124.23W	10.00	191.00
	ABOUT 4 NAUTICAL MILES NORTH OF REEDSPORT, OR			
P3045	43.61N/124.23W	43.50N/124.26W	10.00	194.00
	ABOUT 6 NAUTICAL MILES SOUTH OF REEDSPORT, OR			
P3046	43.50N/124.26W	43.31N/124.38W	10.00	207.00
	ABOUT 14 NAUTICAL MILES NORTH OF CAPE ARAGO, OR			
P3047	43.31N/124.38W	43.20N/124.40W	10.00	182.00
	CAPE ARAGO, OR			
P3048	43.20N/124.40W	43.08N/124.45W	10.00	190.00
	ABOUT 10 NAUTICAL MILES SOUTH OF CAPE ARAGO, OR			
P3049	43.08N/124.45W	42.96N/124.48W	10.00	194.00
	COQUILLE POINT, OR			
P3050	42.96N/124.48W	42.83N/124.56W	10.00	205.00
	ABOUT 11 NAUTICAL MILES NORTH OF CAPE BLANCO, OR			
P3051	42.83N/124.56W	42.73N/124.51W	10.00	162.00
	CAPE BLANCO, OR			
P3052	42.73N/124.51W	42.61N/124.40W	10.00	148.00
	PORT ORFORD, OR			
P3053	42.61N/124.40W	42.46N/124.43W	10.00	184.00
	COLEBROOKE, OR			
P3054	42.46N/124.43W	42.46N/124.43W	10.00	180.00
	ABOUT 10 NAUTICAL MILES NORTH OF CAPE SEBASTIAN, OR			
P3055	42.35N/124.43W	42.25N/124.45W	10.00	176.00
	CAPE SEBASTIAN, OR			
P3056	42.25N/124.45W	42.10N/124.35W	10.00	163.00
	ABOUT 12 NAUTICAL MILES NORTH OF CAPE FERRELO, OR			

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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3057	42.10N/124.35W	42.00N/124.21W	10.00	134.00
	CAPE FERRELO, OR			
P3058	42.00N/124.21W	41.86N/124.21W	10.00	179.00
	ABOUT 4 NAUTICAL MILES NORTH OF PYRAMID POINT, CA			
P3059	41.86N/124.21W	41.78N/124.26W	10.00	195.00
	ABOUT 6 NAUTICAL MILES SOUTH OF PYRAMID POINT, CA			
P3060	41.78N/124.26W	41.71N/124.15W	10.00	128.00
	POINT ST. GEORGE, CA			
P3061	41.71N/124.15W	41.58N/124.11W	10.00	163.00
	ABOUT 9 NAUTICAL MILES SOUTH OF POINT ST. GEORGE, CA			
P3062	41.58N/124.11W	41.48N/124.08W	10.00	173.00
	ABOUT 19 NAUTICAL MILES SOUTH OF POINT ST. GEORGE, CA			
P3063	41.48N/124.08W	41.35N/124.08W	10.00	179.00
	ABOUT 28 NAUTICAL MILES SOUTH OF POINT ST. GEORGE, CA			
P3064	41.35N/124.08W	41.23N/124.11W	10.00	192.00
	ABOUT 16 NAUTICAL MILES NORTH OF RODGERS PEAK, CA			
P3065	41.23N/124.11W	41.13N/124.16W	10.00	198.00
	ABOUT 7 NAUTICAL MILES NORTH OF RODGERS PEAK, CA			
P3066	41.13N/124.16W	41.05N/124.15W	10.00	174.00
	SOUTH OF RODGERS PEAK, CA			
P3067	41.05N/124.15W	40.98N/124.11W	10.00	163.00
	TRINIDAD HEAD, CA			
P3068	40.98N/124.11W	40.86N/124.16W	10.00	196.00
	ABOUT 7 NAUTICAL MILES SOUTH OF TRINIDAD HEAD, CA			
P3069	40.86N/124.16W	40.75N/124.25W	10.00	205.00
	ABOUT 9 NAUTICAL MILES NORTH OF EUREKA, CA			
P3070	40.75N/124.25W	40.65N/124.31W	10.00	206.00
	EUREKA, CA			

STATION DICTIONARY/INDEX FILE LIST
REPORT NO. 901

LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3071	40.65N/124.31W	40.53N/124.36W	10.00	201.00
	ABOUT 10 NAUTICAL MILES SOUTH OF EUREKA, CA			
P3072	40.53N/124.36W	40.43N/124.40W	10.00	196.00
	NORTH OF FALSE CAPE, CA			
P3073	40.43N/124.40W	40.33N/124.35W	10.00	161.00
	CAPE MENDOCINO, CA			
P3074	40.33N/124.35W	40.01N/124.35W	10.00	180.00
	ABOUT 6 NAUTICAL MILES NORTH OF PUNTA GORDA, CA			
P3075	40.01N/124.35W	40.16N/124.25W	10.00	137.00
	PUNTA GORDA, CA			
P3076	40.16N/124.25W	40.10N/124.13W	10.00	128.00
	ABOUT 10 NAUTICAL MILES SOUTH OF PUNTA GORDA, CA			
P3077	40.10N/124.13W	40.01N/124.08W	10.00	153.00
	KING PEAK, CA			
P3078	40.01N/124.08W	39.91N/123.91W	10.00	136.00
	POINT DELGADA, CA			
P3079	39.91N/123.91W	39.83N/123.86W	10.00	140.00
	ABOUT 10 NAUTICAL MILES SOUTH OF POINT DELGADA, CA			
P3080	39.83N/123.86W	39.71N/123.85W	10.00	169.00
	ABOUT 9 NAUTICAL MILES NORTH OF CAPE VIZCAINO, CA			
P3081	39.71N/123.85W	39.60N/123.80W	10.00	167.00
	CAPE VIZCAINO, CA			
P3082	39.60N/123.80W	39.48N/123.80W	10.00	183.00
	ABOUT 9 NAUTICAL MILES NORTH OF LAGUNA POINT, CA			
P3083	39.48N/123.80W	39.35N/123.81W	10.00	185.00
	FORT BRAGG, CA			
P3084	39.35N/123.81W	39.21N/123.78W	10.00	165.00
	POINT CABRILLO, CA			

STATION DICTIONARY/INDEX FILE LIST
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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3085	39.21N/123.78W	39.10N/123.70W	10.00	156.00
	NORTH OF NAVARRO HEAD, CA			
P3086	39.10N/123.70W	39.01N/123.70W	10.00	168.00
	ABOUT 10 NAUTICAL MILES SOUTH OF NAVARRO HEAD, CA			
P3087	39.01N/123.70W	38.95N/123.73W	10.00	200.00
	ABOUT 6 NAUTICAL MILES NORTH OF POINT ARENA, CA			
P3088	38.95N/123.73W	38.83N/123.63W	10.00	146.00
	POINT ARENA, CA			
P3089	38.83N/123.63W	38.73N/123.51W	10.00	135.00
	NORTH OF GUALALA MOUNTAIN, CA			
P3090	38.73N/123.51W	38.63N/123.41W	10.00	137.00
	SOUTH OF GUALALA MOUNTAIN, CA			
P3091	38.63N/123.41W	38.53N/123.30W	10.00	138.00
	ABOUT 30 NAUTICAL MILES SOUTH OF POINT ARENA, CA			
P3092	38.53N/123.30W	38.43N/123.16W	10.00	127.00
	ABOUT 24 NAUTICAL MILES NORTH OF BODEGA HEAD, CA			
P3093	38.43N/123.16W	38.36N/123.08W	10.00	146.00
	ABOUT 14 NAUTICAL MILES NORTH OF BODEGA HEAD, CA			
P3094	38.36N/123.08W	38.31N/123.08W	10.00	180.00
	ABOUT 4 NAUTICAL MILES NORTH OF BODEGA HEAD, CA			
P3095	38.31N/123.08W	38.20N/122.96W	10.00	143.00
	BODEGA HEAD, CA			
P3096	38.20N/122.96W	38.08N/122.96W	10.00	180.00
	ABOUT 10 NAUTICAL MILES SOUTH OF BODEGA HEAD, CA			
P3097	38.08N/122.96W	38.00N/123.01W	10.00	200.00
	ABOUT 7 NAUTICAL MILES NORTH OF POINT REYES, CA			
P3098	38.00N/123.01W	38.00N/122.83W	10.00	90.00
	POINT REYES, CA			

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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3099	38.00N/122.83W	37.88N/122.71W	10.00	137.00
	ABOUT 11 NAUTICAL MILES SOUTH OF POINT REYES, CA			
P3100	37.88N/122.71W	37.88N/122.63W	10.00	90.00
	SOUTH OF BOLINAS POINT, CA			
P3101	37.88N/122.63W	37.81N/122.53W	10.00	132.00
	NORTH OF POINT BONITA, CA			
P3102	37.81N/122.53W	37.66N/122.50W	10.00	171.00
	NORTH OF SAN FRANCISCO, CA			
P3103	37.66N/122.50W	37.58N/122.51W	10.00	190.00
	SOUTH OF SAN FRANCISCO, CA			
P3104	37.58N/122.51W	37.50N/122.48W	10.00	177.00
	POINT SAN PEDRO, CA			
P3105	37.50N/122.48W	37.38N/122.41W	10.00	152.00
	SOUTH OF POINT MONTARA, CA			
P3106	37.38N/122.41W	37.26N/122.41W	10.00	180.00
	ABOUT 11 NAUTICAL MILES SOUTH OF POINT MONTARA, CA			
P3107	37.26N/122.41W	37.11N/122.31W	10.00	154.00
	NORTH OF PESCADERO POINT, CA			
P3108	37.11N/122.31W	37.01N/122.21W	10.00	135.00
	POINT ANO NUEVO, CA			
P3109	37.01N/122.21W	36.95N/122.08W	10.00	129.00
	ABOUT 9 NAUTICAL MILES SOUTH OF POINT ANO NUEVO, CA			
P3110	36.95N/122.08W	36.96N/121.90W	10.00	80.00
	SANTA CRUZ, CA			
P3111	36.96N/121.90W	36.85N/121.81W	10.00	144.00
	EAST OF SANTA CRUZ, CA			
P3112	36.85N/121.81W	36.73N/121.81W	10.00	180.00
	ABOUT 13 NAUTICAL MILES SOUTHEAST OF SANTA CRUZ, CA			

STATION DICTIONARY/INDEX FILE LIST
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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3113	36.73N/121.81W	36.63N/121.93W	10.00	225.00
	ABOUT 10 NAUTICAL MILES NORTH OF POINT PINOS, CA			
P3114	36.58N/121.96W	36.45N/121.93W	10.00	163.00
	MONTEREY, CA			
P3115	36.45N/121.93W	36.28N/121.91W	10.00	172.00
	ABOUT 11 NAUTICAL MILES NORTH OF POINT SUR, CA			
P3116	36.28N/121.91W	36.16N/121.75W	10.00	128.00
	POINT SUR, CA			
P3117	36.16N/121.75W	36.11N/121.68W	10.00	132.00
	ABOUT 10 NAUTICAL MILES SOUTH OF POINT SUR, CA			
P3118	36.11N/121.68W	36.03N/121.63W	10.00	151.00
	ABOUT 9 NAUTICAL MILES NORTH OF LOPEZ POINT, CA			
P3119	36.03N/121.63W	35.86N/121.53W	10.00	146.00
	LOPEZ POINT, CA			
P3120	35.86N/121.53W	35.76N/121.41W	10.00	135.00
	CAPE SAN MARTIN, CA			
P3121	35.76N/121.41W	35.63N/121.35W	10.00	158.00
	ABOUT 10 NAUTICAL MILES SOUTH OF CAPE SAN MARTIN, CA			
P3122	35.63N/121.35W	35.56N/121.26W	10.00	110.00
	POINT PIEDRAS BLANCAS, CA			
P3123	35.56N/121.26W	35.46N/121.20W	10.00	147.00
	SAN SIMEON, CA, CA			
P3124	35.46N/121.20W	35.45N/121.01W	10.00	133.00
	ABOUT 9 NAUTICAL MILES SOUTH OF SAN SIMEON			
P3125	35.45N/121.01W	35.41N/120.91W	10.00	110.00
	POINT ESTERO, CA, CA			
P3126	35.41N/120.91W	35.23N/120.88W	10.00	186.00
	ABOUT 9 NAUTICAL MILES SOUTH OF POINT ESTERO			

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LOCATION: PACIFIC OCEAN PHASE: 3

STATION ID	LATITUDE #1 /LONGITUDE #1	LATITUDE #2 LONGITUDE #2	WATER DEPTH	SHORE ANGLE
P3127	35.23N/120.88W	35.16N/120.81W	10.00	126.00
	POINT BUCHON, CA			
P3128	35.16N/120.81W	35.10N/120.65W	10.00	98.00
	AVILA BEACH, CA			
P3129	35.10N/120.65W	34.85N/120.75W	10.00	182.00
	PISMO BEACH, CA			
P3130	34.85N/120.75W	34.81N/120.68W	10.00	134.00
	POINT SAL, CA			
P3131	34.81N/120.68W	34.73N/120.61W	10.00	190.00
	ABOUT 5 NAUTICAL MILES SOUTH OF POINT SAL, CA			
P3132	34.73N/120.61W	34.60N/120.71W	10.00	183.00
	PURISIMA POINT, CA			
P3133	34.60N/120.71W	34.53N/120.60W	10.00	118.00
	POINT ARGUELLO, CA			
P3134	34.53N/120.60W	34.43N/120.46W	10.00	148.00
	POINT CONCEPTION, CA			

```
*ERN ROHHSEAS/WAVETRAN,R



     WAVETRAN
     PROGRAM FOR FINITE WATER DEPTH WAVE TRANSFORMATIONS
     THIS PROGRAM WAS WRITTEN BY DR. R. JENSEN (WESCR-O).
     DISCUSSIONS OF THE METHODS USED IN THIS PROGRAM ARE
     PROVIDED IN WIS REPORT 8.  THE USER IS EXPECTED TO
     BE AWARE OF THE ASSUMPTIONS AND LIMITATIONS OF THE
     PROGRAM.  IT IS SUGGESTED THAT FIRST TIME USERS REVIEW
     WIS REPORT 8. THE USER SHOULD READ SECTION 20.2
     IN THE SEAS USER MANUAL WHICH DESCRIBES A WAVETRAN
     SESSION.


     WAVETRAN IS INTENDED FOR TRANSFORMING A MONTH OR
     LESS OF WAVE RECORDS. LONGER RECORDS MAY BE RUN, BUT
     THE USER MAY INCUR FILE-SPACE OR RUN-TIME PROBLEMS.


PHILLIPS CONSTANT = 0.0081
DO YOU WISH TO CHANGE (Y OR N)?
=N
INPUT WATER DEPTH (METERS) INTO WHICH
TRANSFORMATION IS TO BE MADE
=4
INPUT USER SITE IDENTIFICATION (6 CHAR)
=F.BCH
INPUT SHORELINE ANGLE
=14
INPUT SHELTERING INFORMATION (NS,SHELA1,SHELA2)
SEE USER'S MANUAL FOR SHELA1 AND SHELA2 CODES
  NS (0=NO SHELTERING; 1=1-SIDED; 2=2-SIDED)
  SHELA1 - FIRST SHELTERED ANGLE (0 IF NO SHELTERING)
  SHELA2 - SECOND SHELTERED ANGLE (0 IF NO SHELTERING)
=0,0,0
INPUT BEGINNING AND ENDING DATES (YYMMDDHH,YYMMDDHH)
=75101500,75101721
INPUT DATA FILE NAME
=FBEACH
OUTPUT DATA TO TERMINAL OR FILE (T OR F)?
=T
```

SUMMARY TABLE

INPUT STATION ID = A3132
OUTPUT ID = F.BCH
WATER DEPTH = 4.0 (M)
NUMBER OF INPUT OBSERVATIONS = 34
MAX INPUT SEA HT(M)= 1.7 MAX INPUT SWELL HT(M)= 0.1

SUMMARY OF TRANSFORMED WAVE DATA

ID	SHORELINE ANGLE	SHELTERING
F.BCH	76.0	NO SHELTERING EMPLOYED

SEA OUTPUT INFORMATION

ID	TOTAL	PROCESSED	DPT LIM	ZERO HT
F.BCH	24	24	0	0

SWELL OUTPUT INFORMATION

ID	TOTAL	PROCESSED	DPT LIM
F.BCH	18	18	0

SHELTERED INFORMATION SEA ONLY *

ID	#OBS SHELA1	#OBS SHELA2
F.BCH	0	0

MAXIMUM WAVE CONDITIONS (M)

	SEA MAXIMA			SWELL MAXIMA		
ID	DATE	TRH	INPUT H	DATE	TRH	INPUT H
F.BCH	75101715	0.8	1.7	75101500	0.0	0.1

-- DEFINITIONS --

DATE = YEAR,MONTH,DAY,HOUR (GMT)
ID = USER LOCATION IDENTIFICATION
TRH = TRANSFORMED WAVE HEIGHT (CM)
TRT = TRANSFORMED WAVE PERIOD (SEC)
TRTH = TRANSFORMED MEAN DIRECTION OF WAVE PROPAGATION (DEGREES RELATIVE TO THE SHORELINE)
* = DEPTH LIMITED CONDITIONS ATTAINED

TIME HISTORY WAVE DATA OUTPUT
WATER DEPTH = 4.0 (M)

		SHORELINE	SEA WAVES			SWELL WAVES		
DATE	ID	ANGLE	TRH	TRT	TRTH	TRH	TRT	TRTH
75101500	F.BCH	76.	13.	2.	32.	5.	7.	67.
75101503	F.BCH	76.	12.	2.	32.	5.	7.	67.
75101506	F.BCH	76.	2.	1.	53.	5.	7.	67.
75101509	F.BCH	76.	3.	1.	58.	5.	7.	67.
75101512	F.BCH	76.	12.	2.	38.	4.	7.	67.
75101515	F.BCH	76.	17.	2.	38.	4.	7.	67.
75101518	F.BCH	76.	17.	2.	27.	4.	7.	67.
75101521	F.BCH	76.	20.	2.	32.	4.	7.	67.
75101600	F.BCH	76.	17.	2.	27.	4.	7.	67.
75101603	F.BCH	76.	20.	2.	32.	4.	7.	67.
75101606	F.BCH	76.	18.	2.	27.	4.	7.	67.
75101609	F.BCH	76.	21.	2.	32.	4.	7.	67.
75101612	F.BCH	76.	21.	2.	32.	4.	7.	67.
75101615	F.BCH	76.	23.	3.	36.	4.	7.	67.
75101618	F.BCH	76.	28.	3.	36.	4.	7.	67.
75101621	F.BCH	76.	41.	3.	36.	4.	7.	67.
75101700	F.BCH	76.	35.	4.	39.	4.	7.	67.
75101703	F.BCH	76.	40.	5.	50.	4.	7.	67.
75101706	F.BCH	76.	49.	5.	50.	0.	0.	0.
75101709	F.BCH	76.	42.	6.	56.	0.	0.	0.
75101712	F.BCH	76.	47.	7.	60.	0.	0.	0.
75101715	F.BCH	76.	85.	7.	63.	0.	0.	0.
75101718	F.BCH	76.	46.	7.	60.	0.	0.	0.
75101721	F.BCH	76.	50.	6.	56.	0.	0.	0.

APPENDIX C: JOUT COMMAND

Command Definition

The Honeywell-supported JOUT command permits manipulation of output from a batch job at a time-sharing terminal. Report output may be formatted for 132-character lines and printed in the same manner as on a high-speed line printer.

Preparation for Use of JOUT

The SEAS user must always identify his terminal line-length capability before entering JOUT if 132-character print lines are desired. Use the following command outside the SEAS program to accomplish this:

LINELENGTH

The SEAS user must also enter a report output code designating JOUT (see paragraph 3.5) to enable job output to be retained on disc for JOUT access.

JOUT Question/Answer Sequences

Command selection

Response: JOUT or JOUT SSSSS

where: SSSSS = SNUMB for the job whose output is to be scanned. If only JOUT is entered, the system requests SNUMB?

If the job output is not available for manipulation, the system transmits an appropriate message and returns to the command level.

Question: FUNCTION?

Response: One of the following functions. When the function has been

completed, the system returns to FUNCTION?

ACTIVITY n

JOUT prepares to read the activity specified by n. This function is not required for SEAS reports since there is only one activity and the JOUT default is Activity 1

DIRECT id

Direct output to remote station specified by id.

DIRECT ONL

Print output at the central site.

EPRINT rc
Simulate printer report output. Report code rc may be any of the codes received from the LIST function, or $$ may be substituted to print the control card list and execution report. Trailing blanks and blank lines are supposed unless this function is preceded by function FFEE.

KILR rc
Prevents printing of unwanted reports. The $$ report cannot be killed with KILR.

LIST
List report codes associated with current activity.

PRINT rc
Simulate printer output of report code rc with no form feed or paging

RELEASE

Remove job output from the system.

SCAN rc

Scan job output of report code rc. SCAN can be used to locate and print specific portions of a report rather than printing an entire report code. See paragraph 19.4 for a description of SCAN subfunctions.

SCAN Question Answer Sequences

Question:	FORM?	
Response	USER	
	SEAS reports will always be "user-generated" form	
Question:	CODE?	
Response:	Carriage return to proceed to next question; code checking is not used for SEAS reports.	
Question:	EDIT?	
Response:	*Y	Compress blanks, line number will not be printed
	Y*	Compress blanks, line number will not be printed
	*N	Type blanks, line number will not be printed
	*	Type blanks, line number will not be printed
	Carriage return	Type blanks, line number will print
	Y	Compress blanks, line number will print
	N	Type blanks, line number will print
Question:	?	
Response:	a SCAN verb	

FIND /string/;n

/ represents a delimiter chosen by user.

The string is a pattern of characters to be searched for;

n represents the n^{th} occurrence.

The FIND verb positions a pointer to the n^{th} line containing the desired string. If n is not given, 1 is assumed.

PRINT n
n is the number of lines to be printed

PRINT causes a printout at the terminal of the next n lines, beginning at current pointer location

LIST n
LIST is synonymous with PRINT

SPACE n
Spaces the pointer ahead n lines. An attempt to space beyond the end of the file results in the pointer being returned to the beginning and a warning message (EOF).

BACK n
Spaces the pointer back n lines. If n is not given, the pointer moves to line 1.

LINE n
Repositions the pointer to line number n.

JOUT and SCAN Examples

The following examples show use of JOUT and SCAN to locate and print only the summary table at the end of Report 30' and various final dispositions for batch printing a report.

```
*JSTS 7432D
7432D OUTPUT WAITING     ID=BF
*JSTS 7408D
7408D OUTPUT WAITING     ID=BF
*JSTS 7437D
7437D EXECUTING
*JSTS 7440D
7440D OUTPUT WAITING     ID=BF
normal termination
```

Job status checks

```
*LINELENGTH 140
```

Set line width ≥ 132.

```
*JOUT 7408D
function EPRINT 06
```

Print report at your wide carriage terminal with paging, etc. just as would be done on a batch printer.

```
*JOUT 7432D
function DIRECT 0N1
```

Direct report to WES main site printer. (You would need to call WES ADP Center to have job mailed to you if desired.)

```
*JOUT 7440D
function DIRECT AB
```

Direct report to remote site station code AB (station codes assigned by WES ITL.

Job status and JOUT Examples

APPENDIX D: SEAS STATION LOCATION MAPS

In addition to the narrative descriptions of SEAS station locations given in SEAS Report No. 901, the following figures are maps showing these locations.

Atlantic Ocean

For the US Atlantic coastal area the following stations are available:

a. Phase I - Deepwater (Figure D1).

b. Phase II - Shelf Zone (Figure D2).

c. Phase III - Nearshore (Figures D3.1 through D3.5

Also given for Phase III are diagrams displaying the shoreline angle coordinate system (Figure D4), and the wave direction angle classes measured relative to each station shoreline angle (Figure D5). See WIS Reports 5 and 9 (Jensen 1983a,b) for a complete discussion of these procedures.

Pacific Ocean

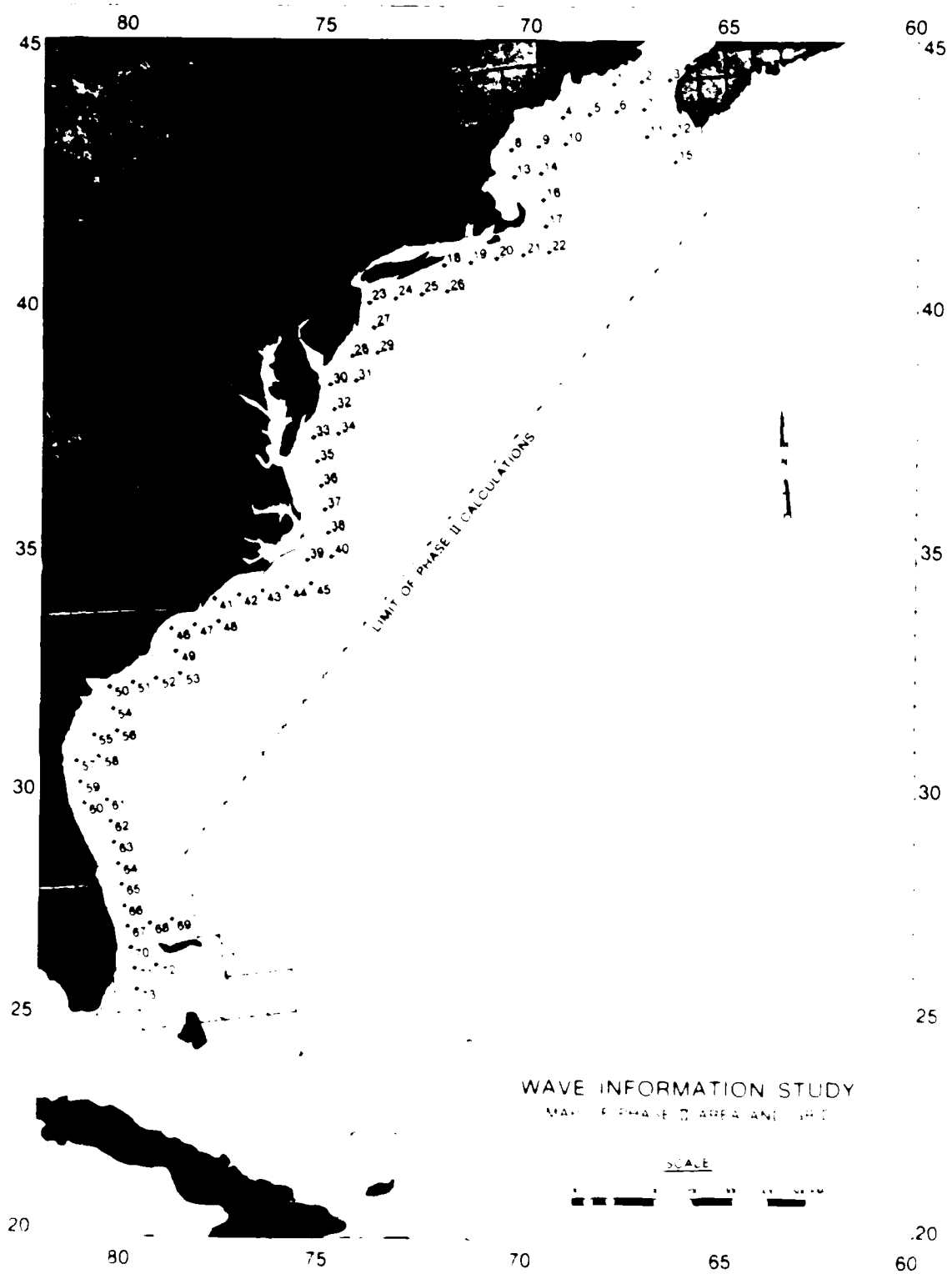
For the US Pacific coastal area the following stations are available:

a. Phase I - Deepwater (Figure D6).

b. Phase II - Intermediate (Figures D7.1 through D7.7)

c. Phase III - Nearshore (Figures D8.1 through D8.5

Figure D1. Atlantic coast Phase I


80
75
70
65
60
45
40
35
30
25
20
LIMIT OF PHASE II CALCULATIONS
WAVE INFORMATION STUDY
SCALE

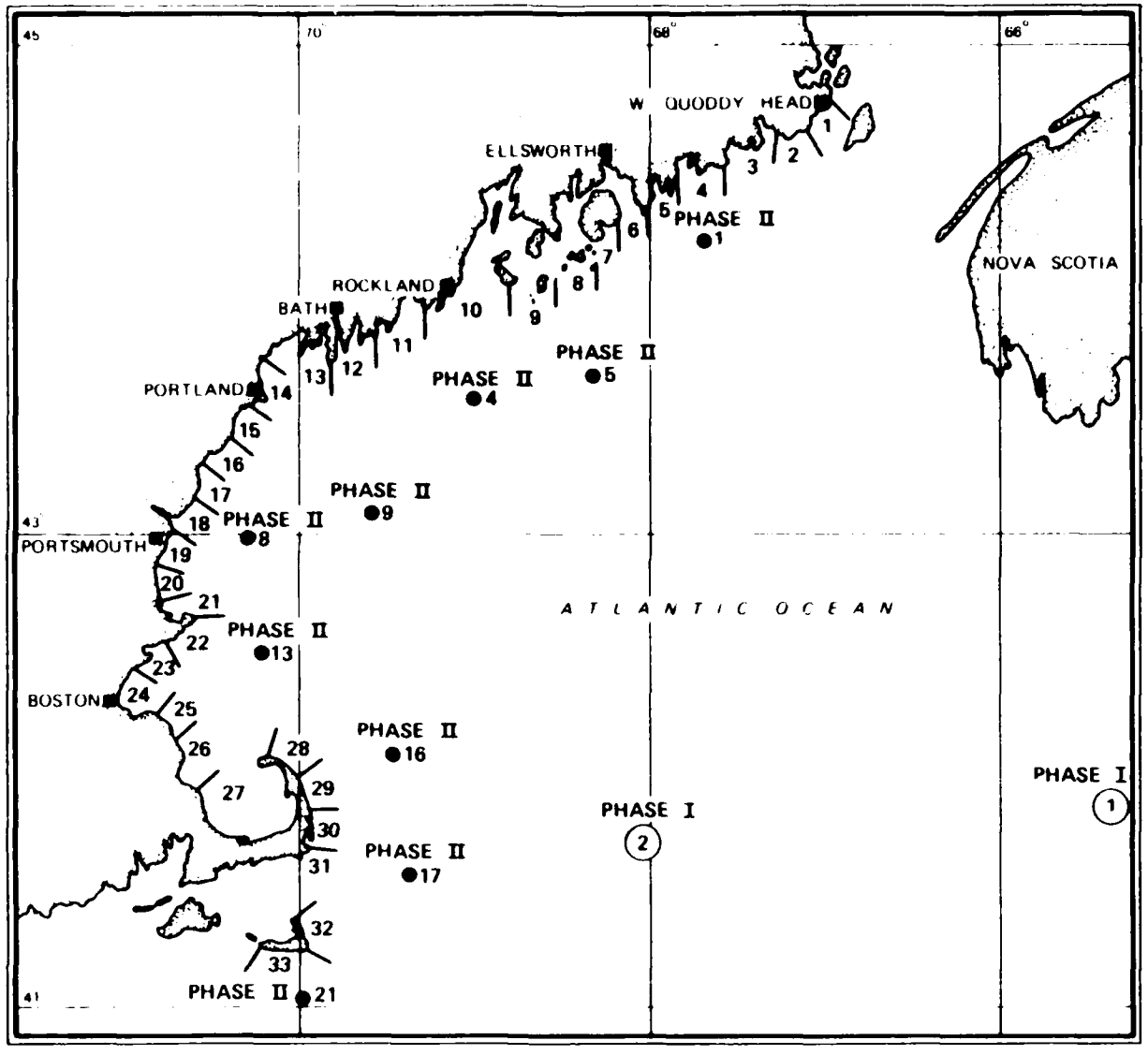


Figure D3.1. Atlantic coast - Phase III (Region 1)

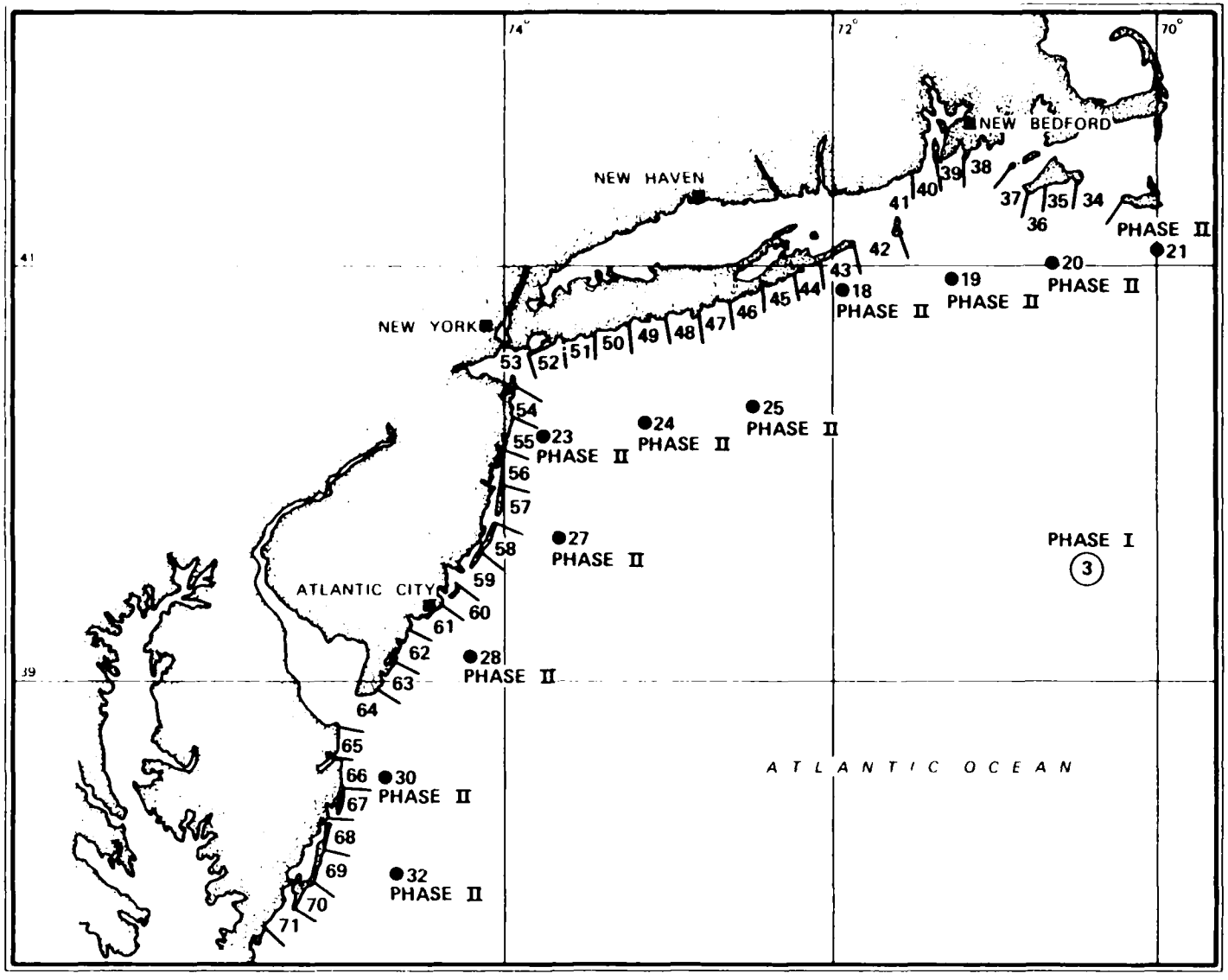


Figure D3.2. Atlantic coast - Phase III (Region 2)

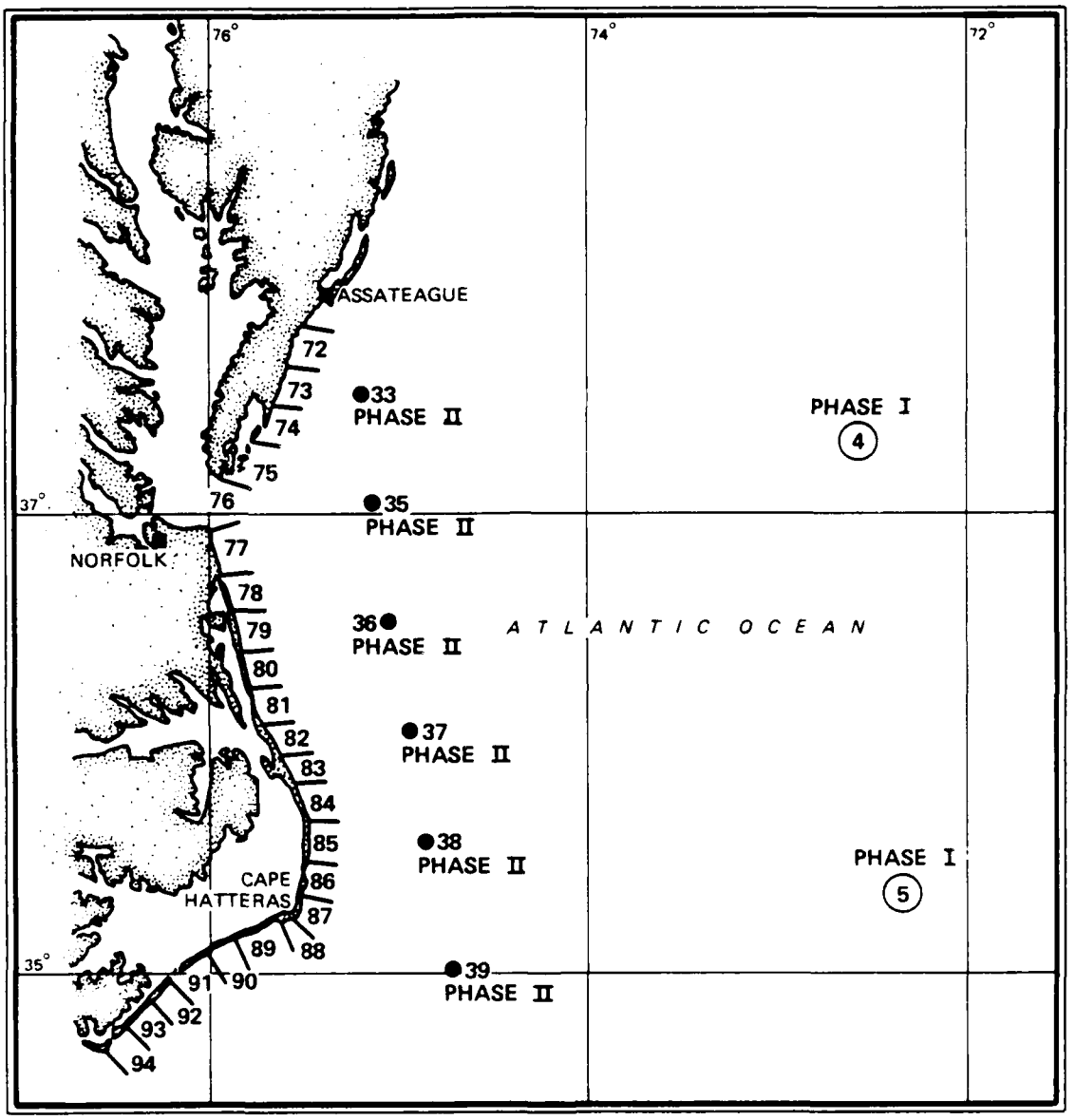


Figure D3.3. Atlantic coast - Phase III (Region 3)

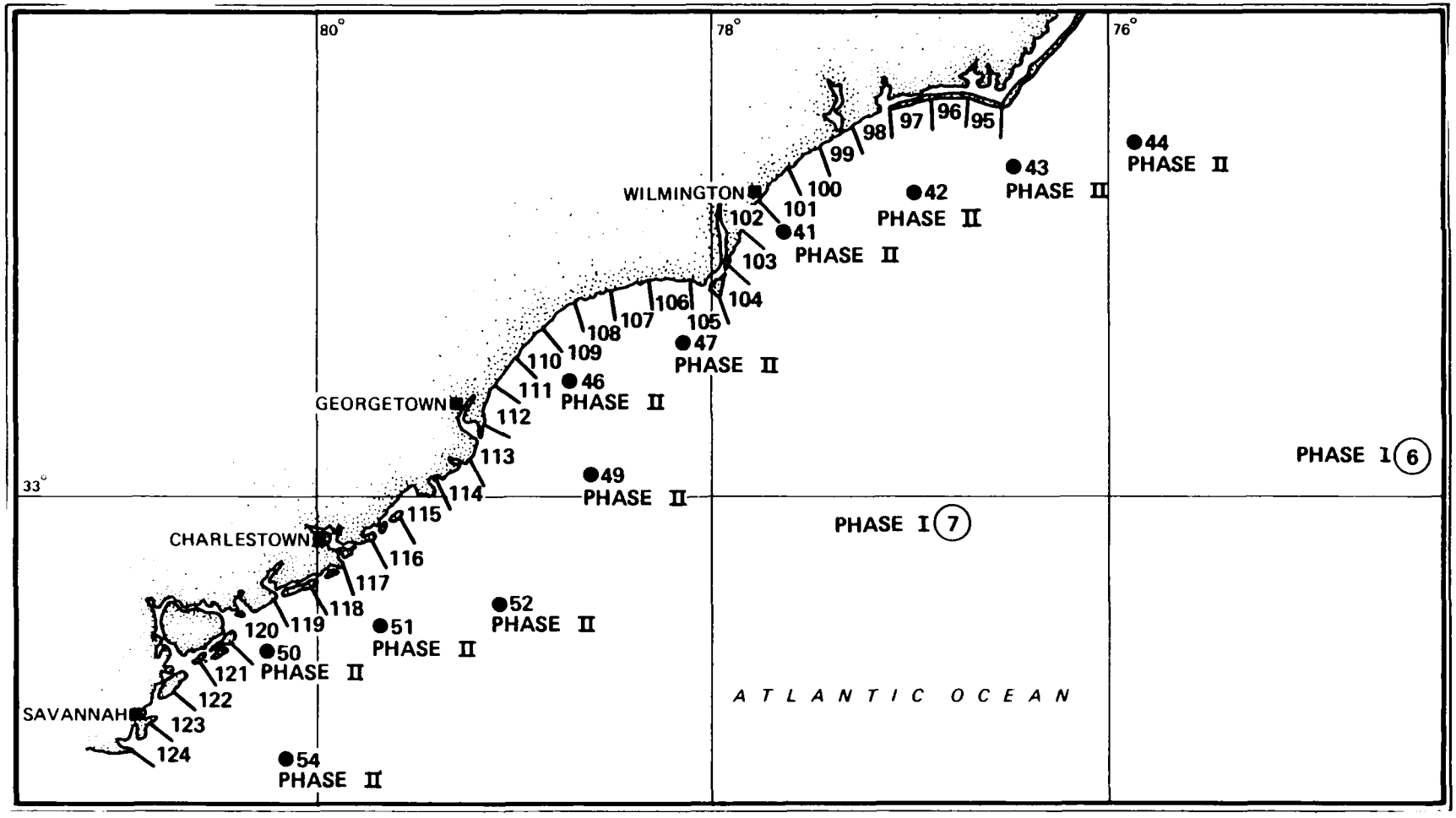


Figure D3.4. Atlantic coast - Phase III (Region 4)

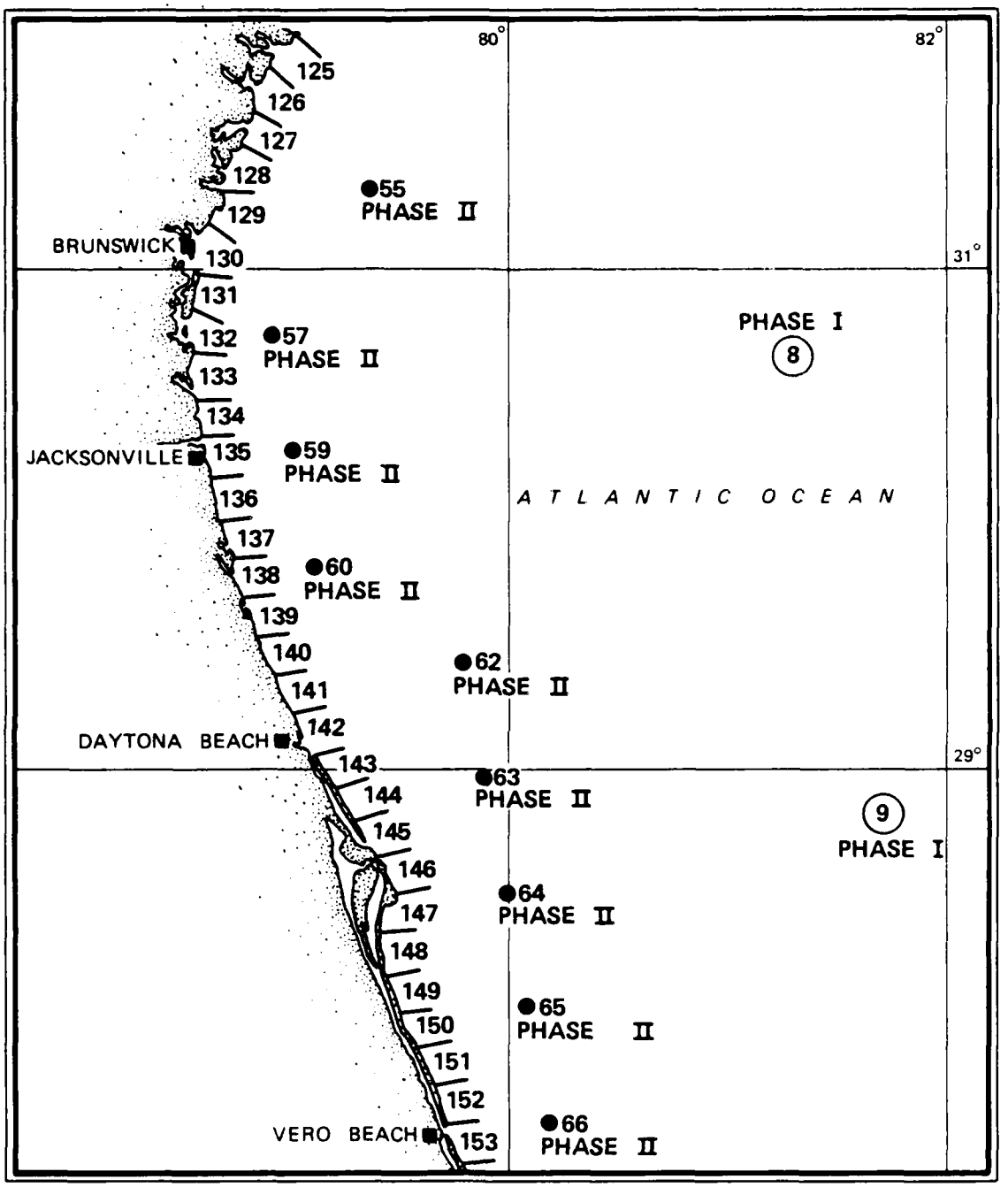


Figure D3.5. Atlantic coast - Phase III (Region 5)

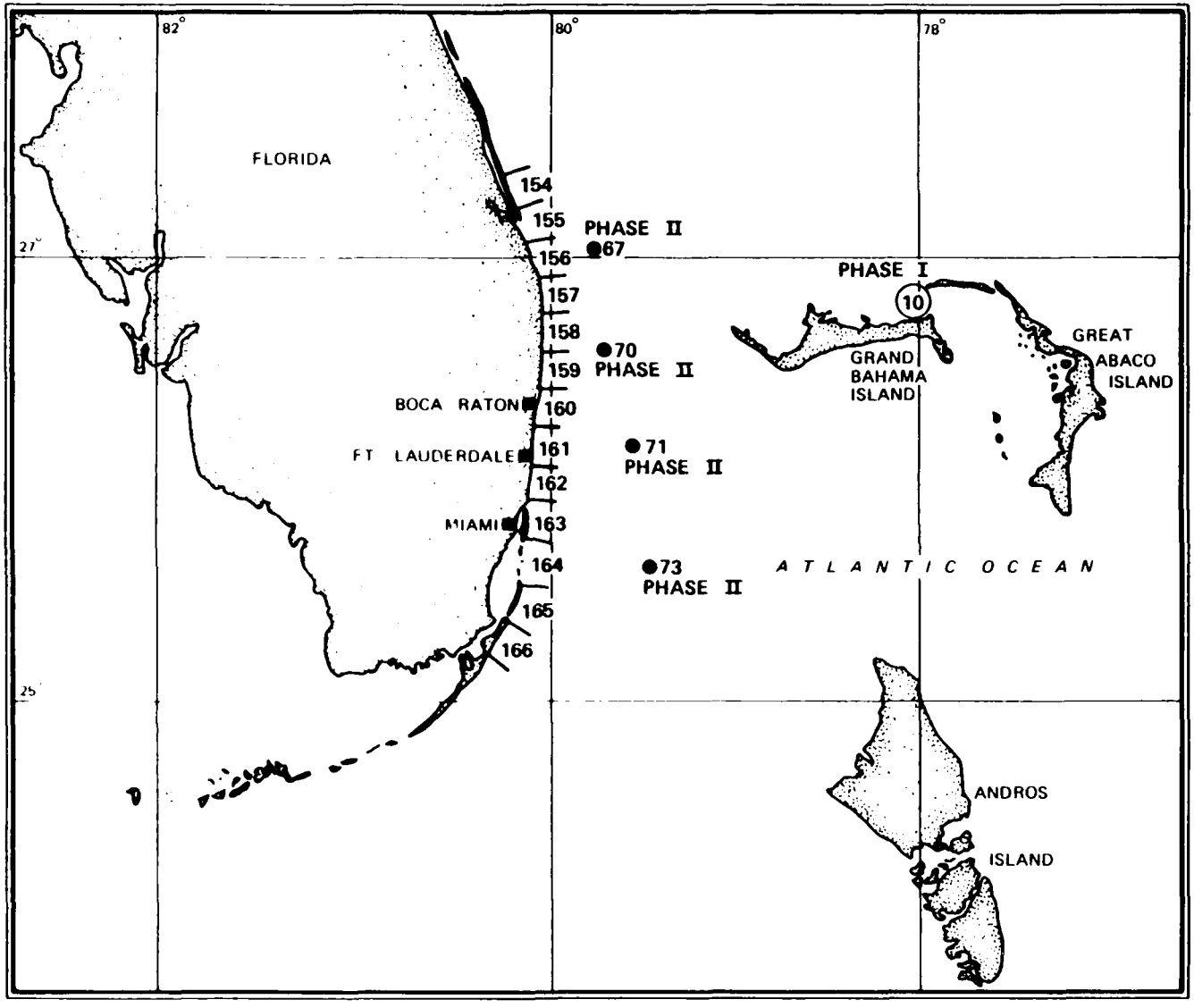


Figure D3.6. Atlantic coast - Phase III (Region 6)

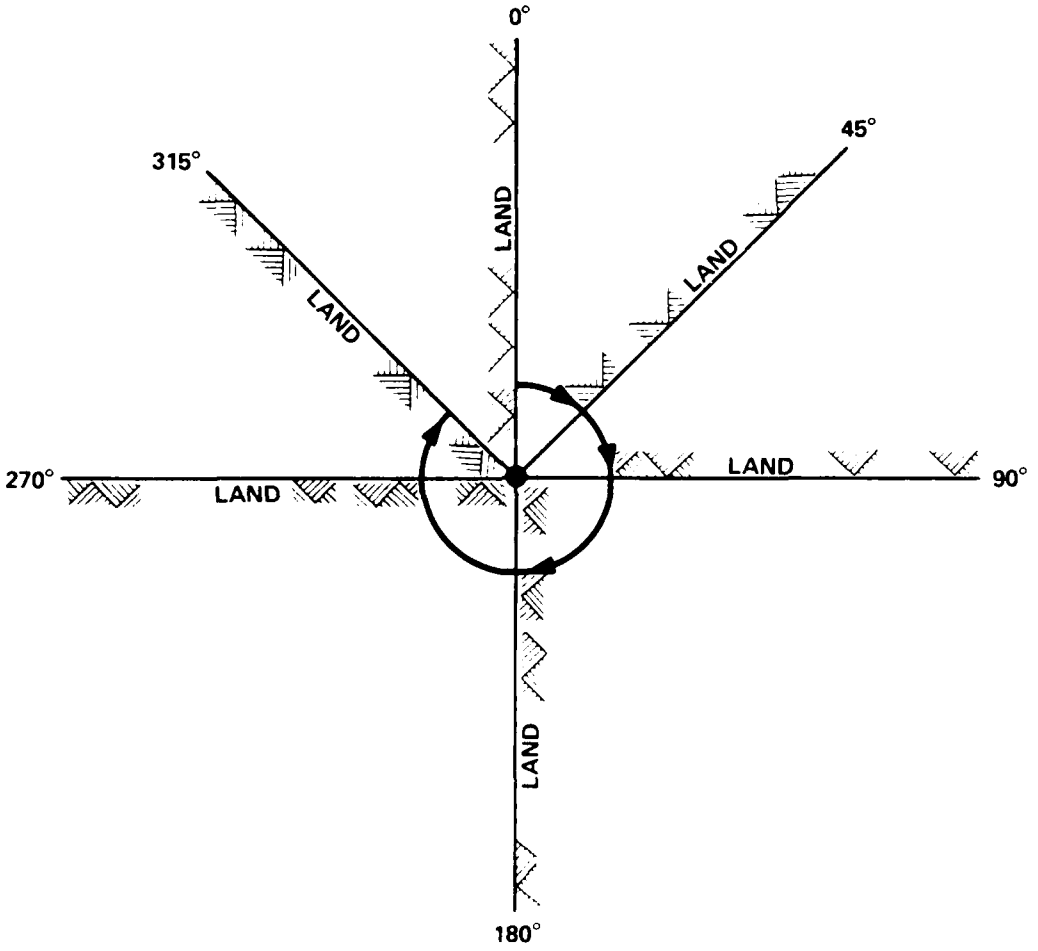


Figure D4. Coordinate system for Phase III shoreline orientation

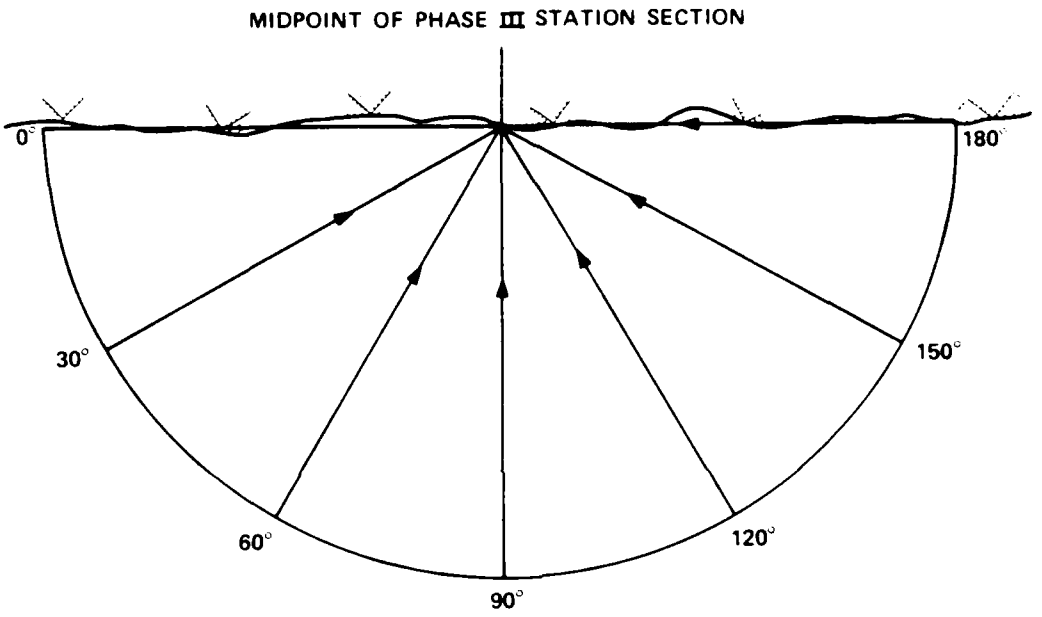


Figure D5. Phase III wave direction angle classes

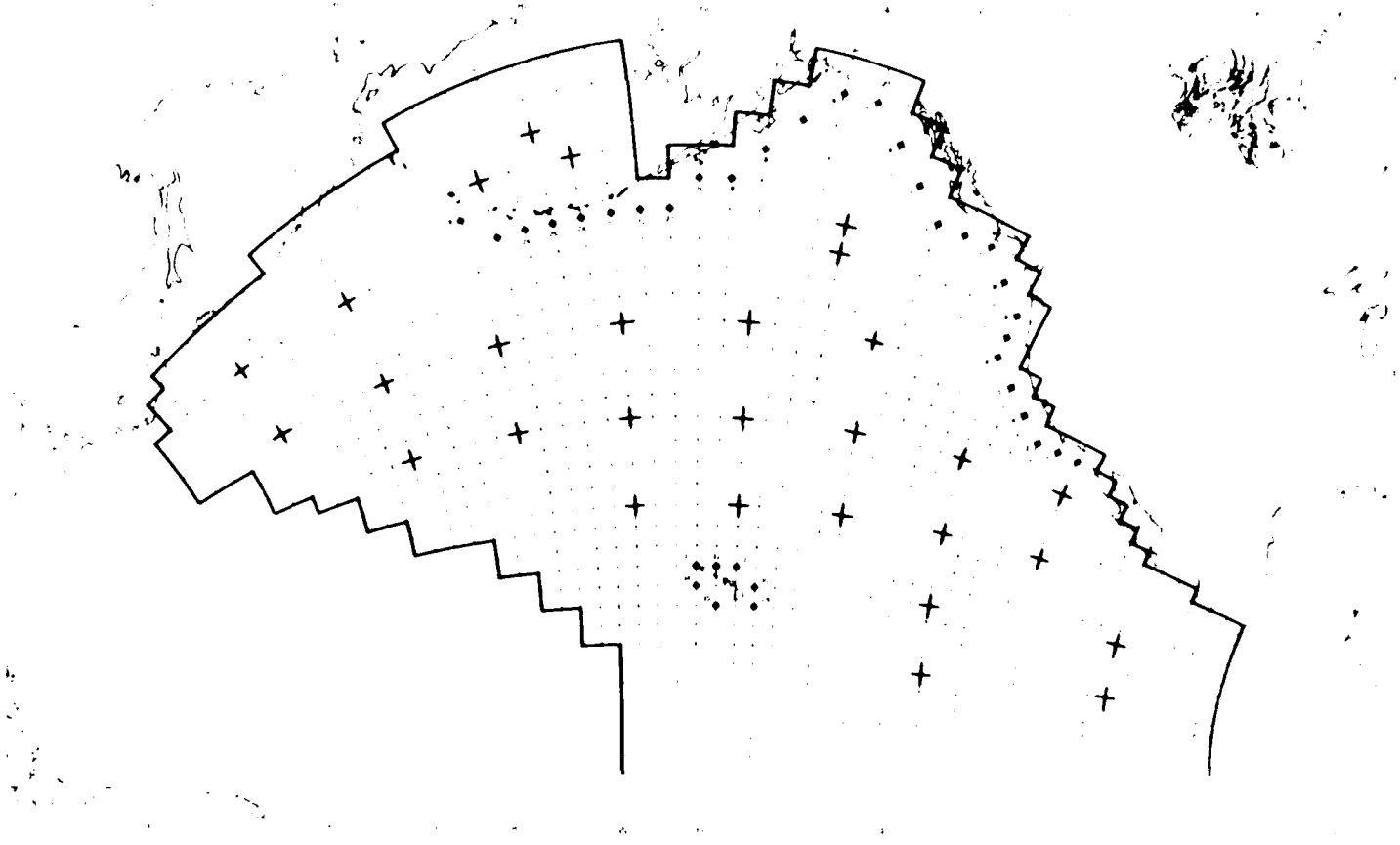


Figure D6. Pacific coast - Phase I

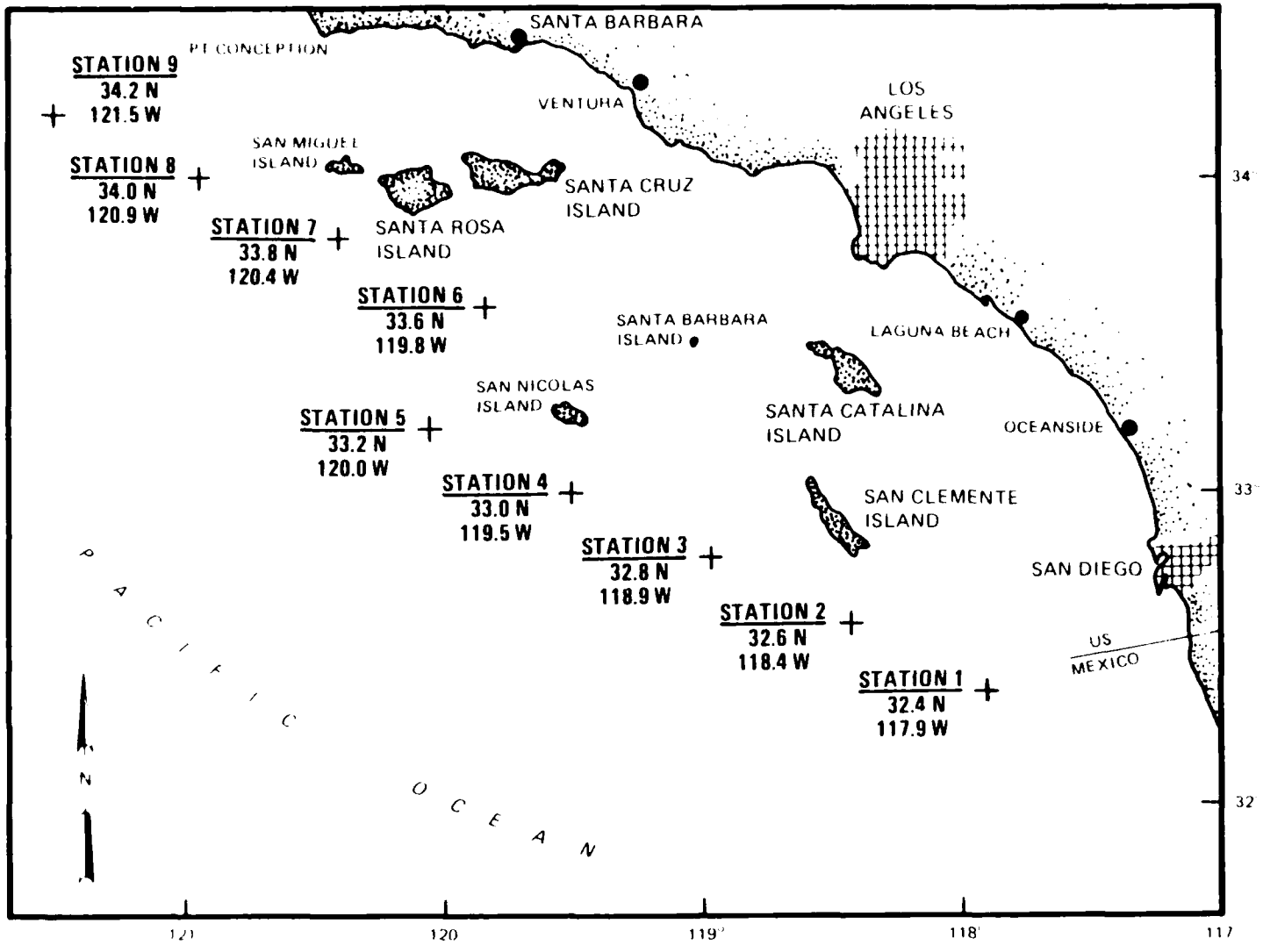


Figure D7.1. Pacific coast - Phase II (Region 1)

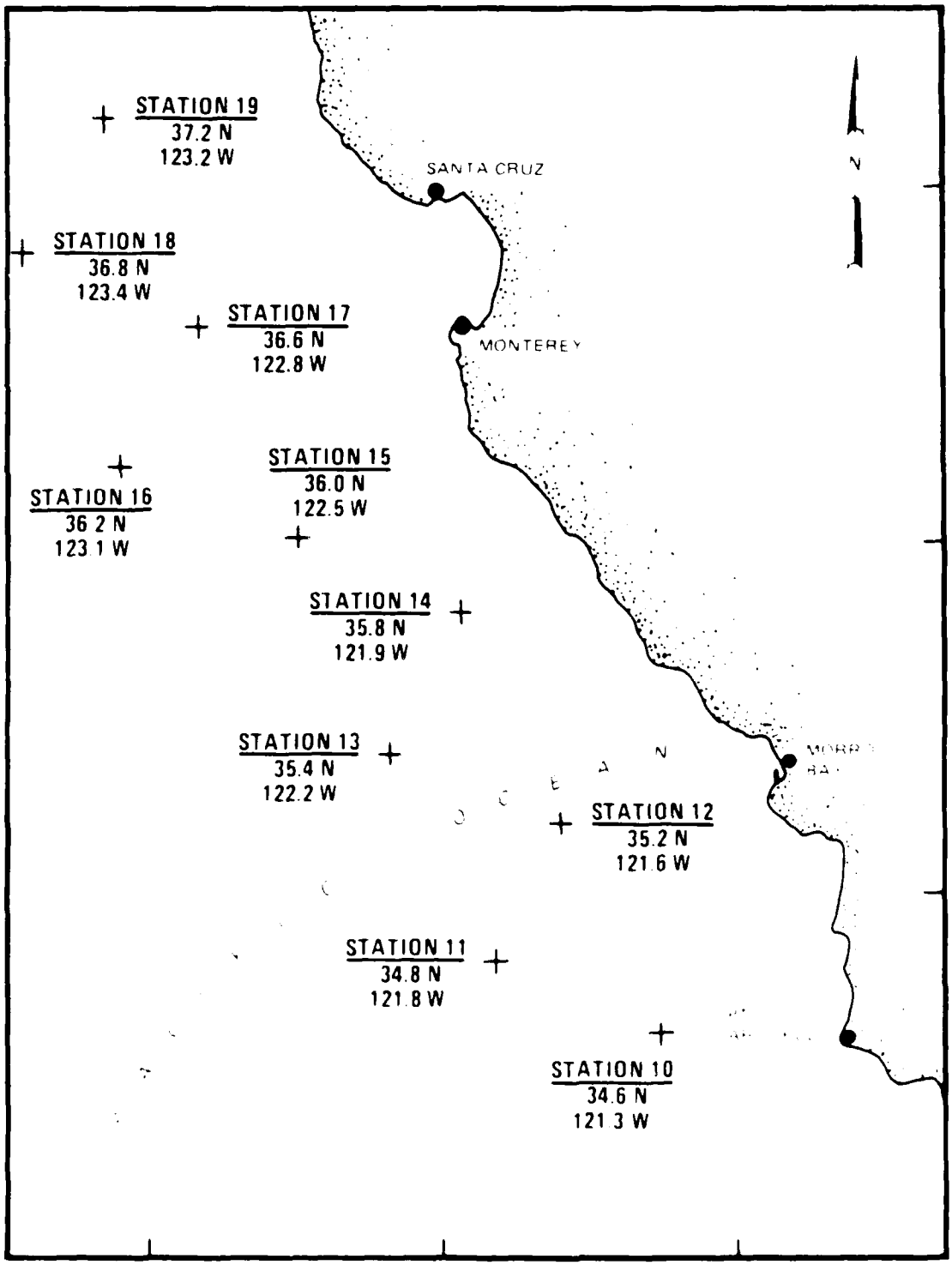


Figure D7.2. Pacific coast - Phase II (Region 2)

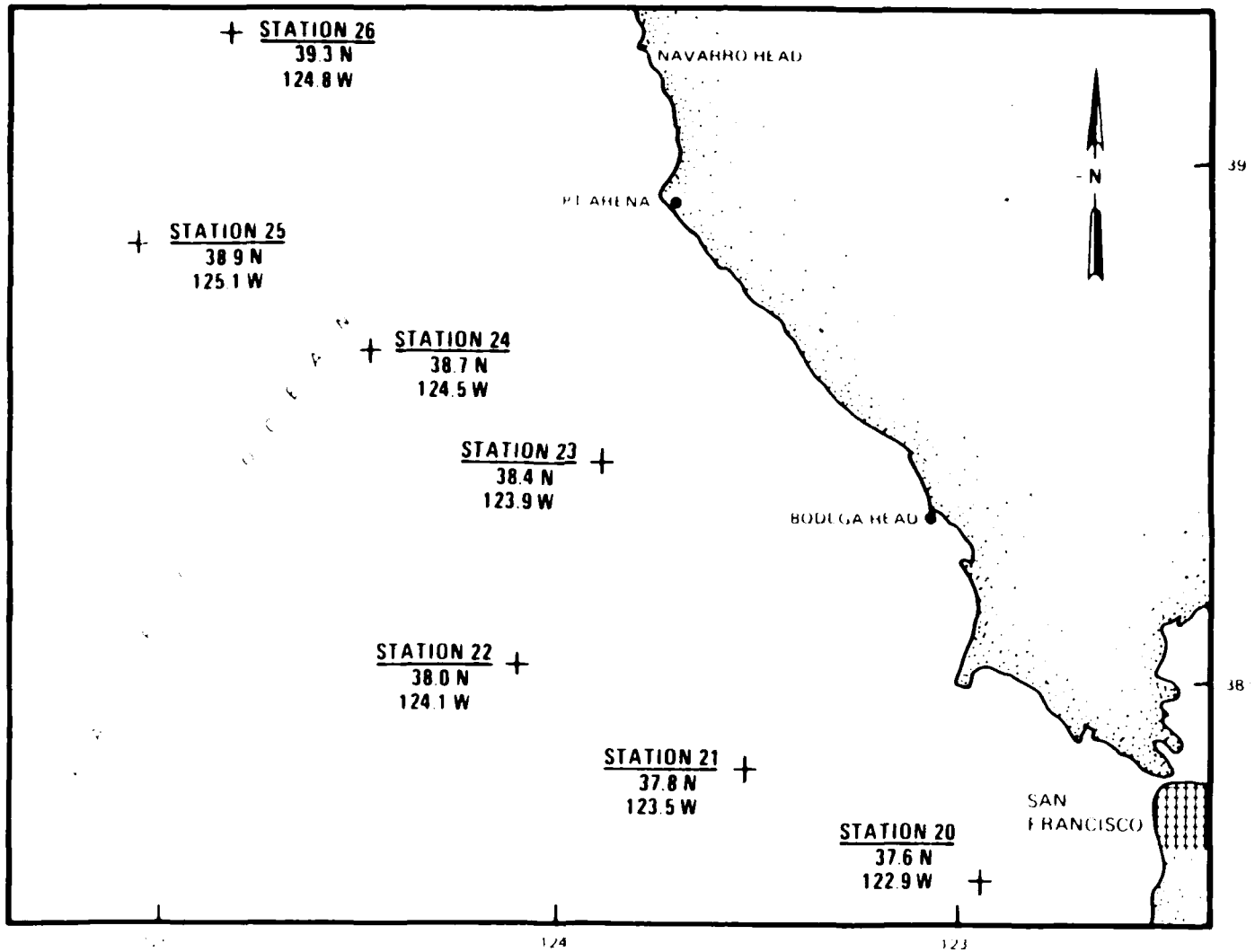


Figure D7.3. Pacific coast - Phase II (Region 3)

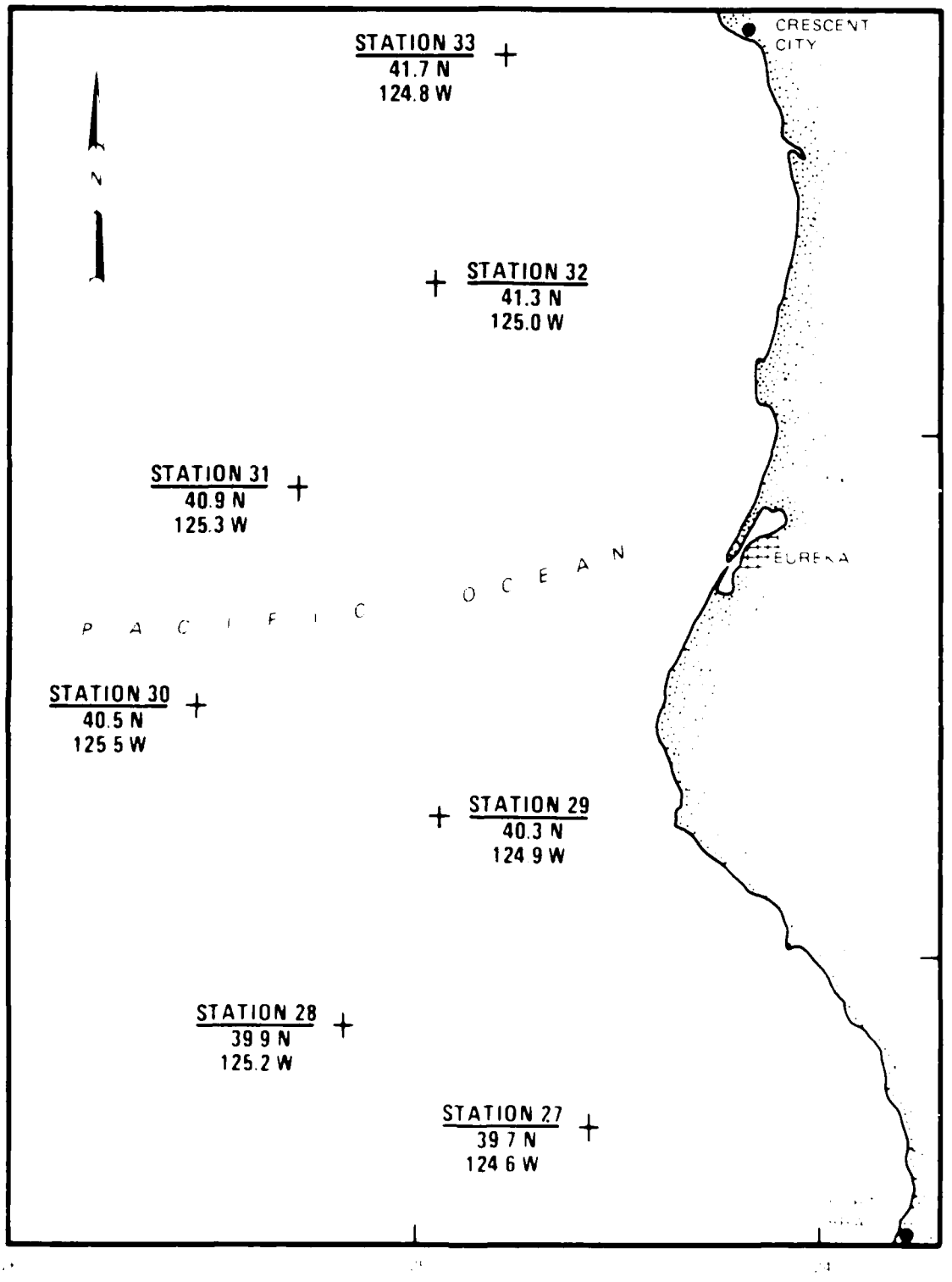


Figure D7.4. Pacific coast - Phase II (Region 4)

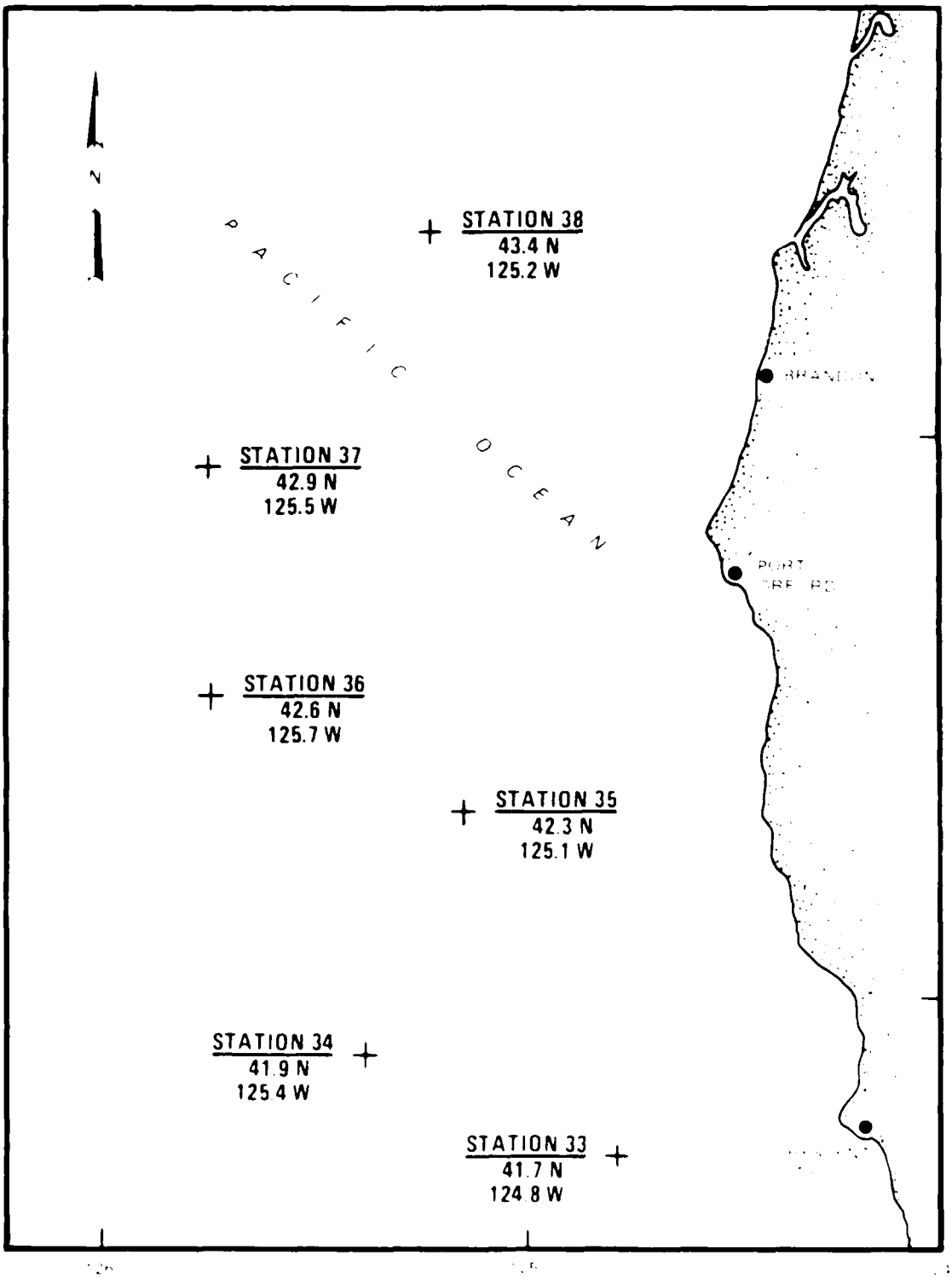


Figure D7.5. Pacific coast - Phase II (Region 5)

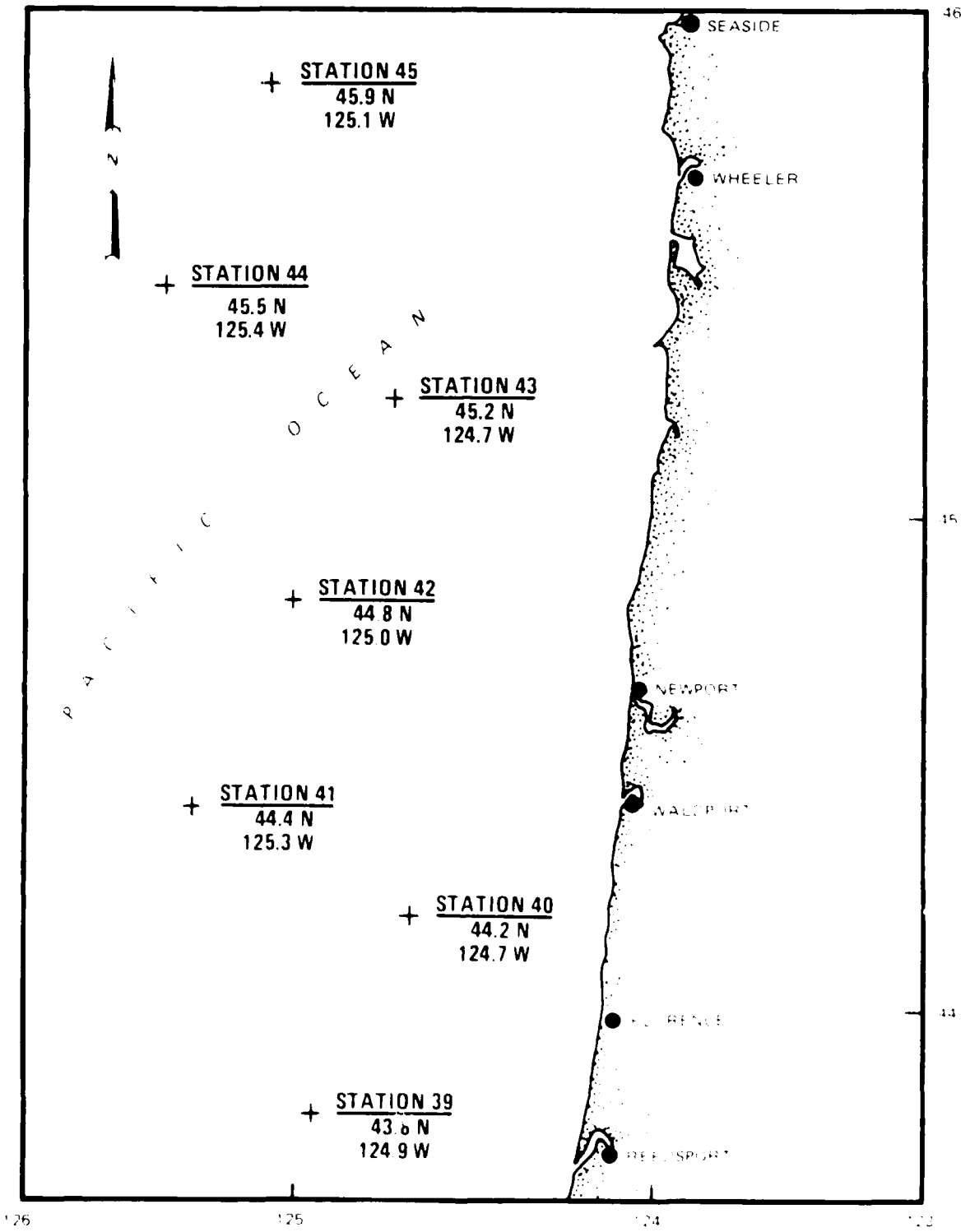


Figure D7.6. Pacific coast - Phase II (Region 6)

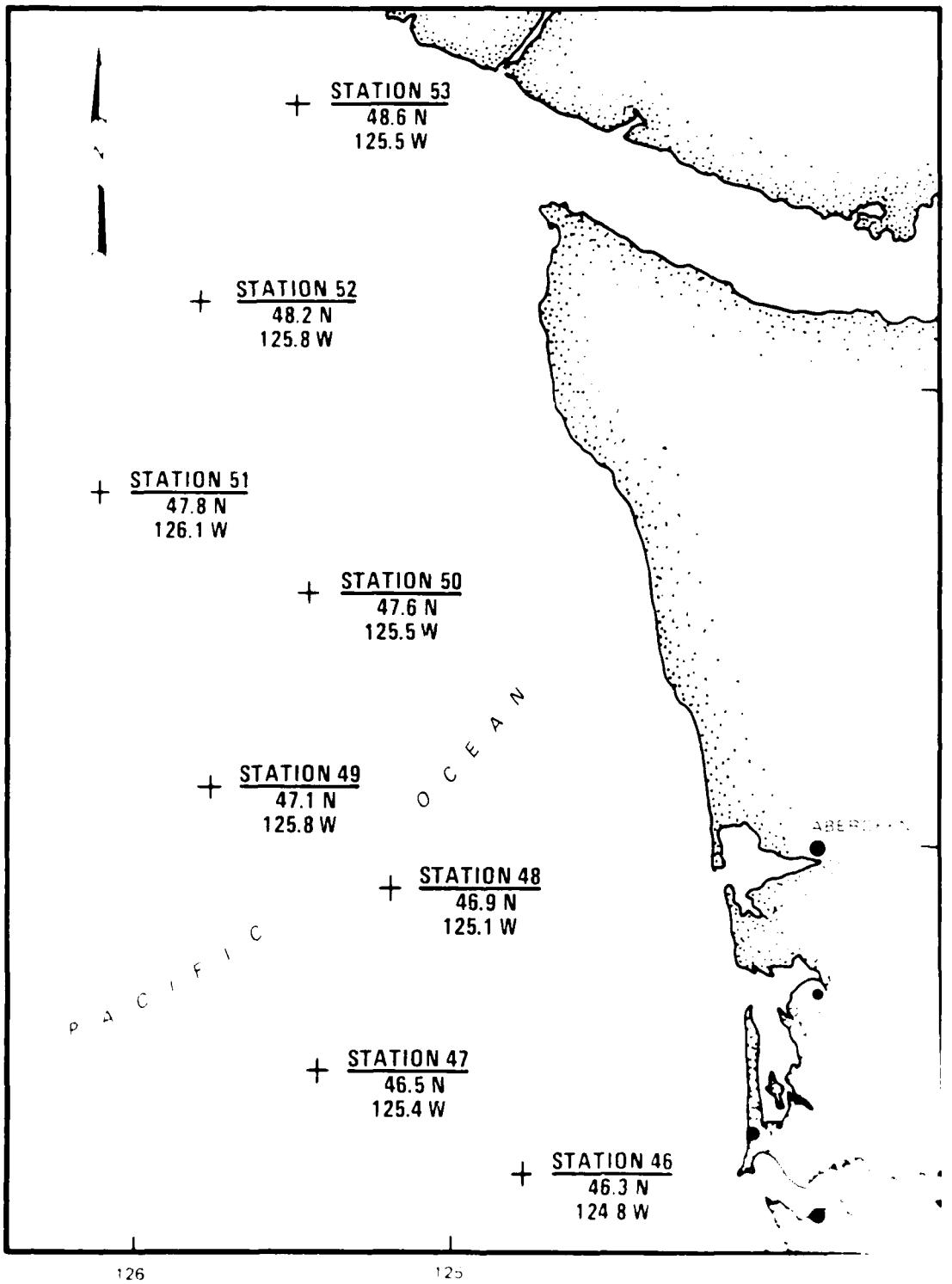


Figure D7.7. Pacific coast -

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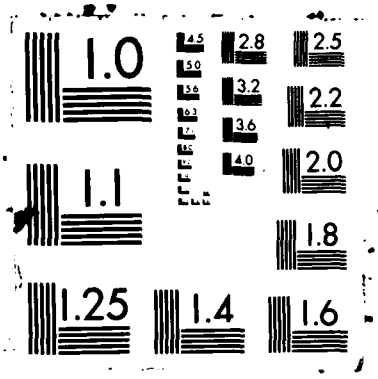
UNCLASSIFIED F/G 8/3 NL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1.4
1.6
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2.2
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2.8
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3.6
4.0
4.5
5.0
5.6

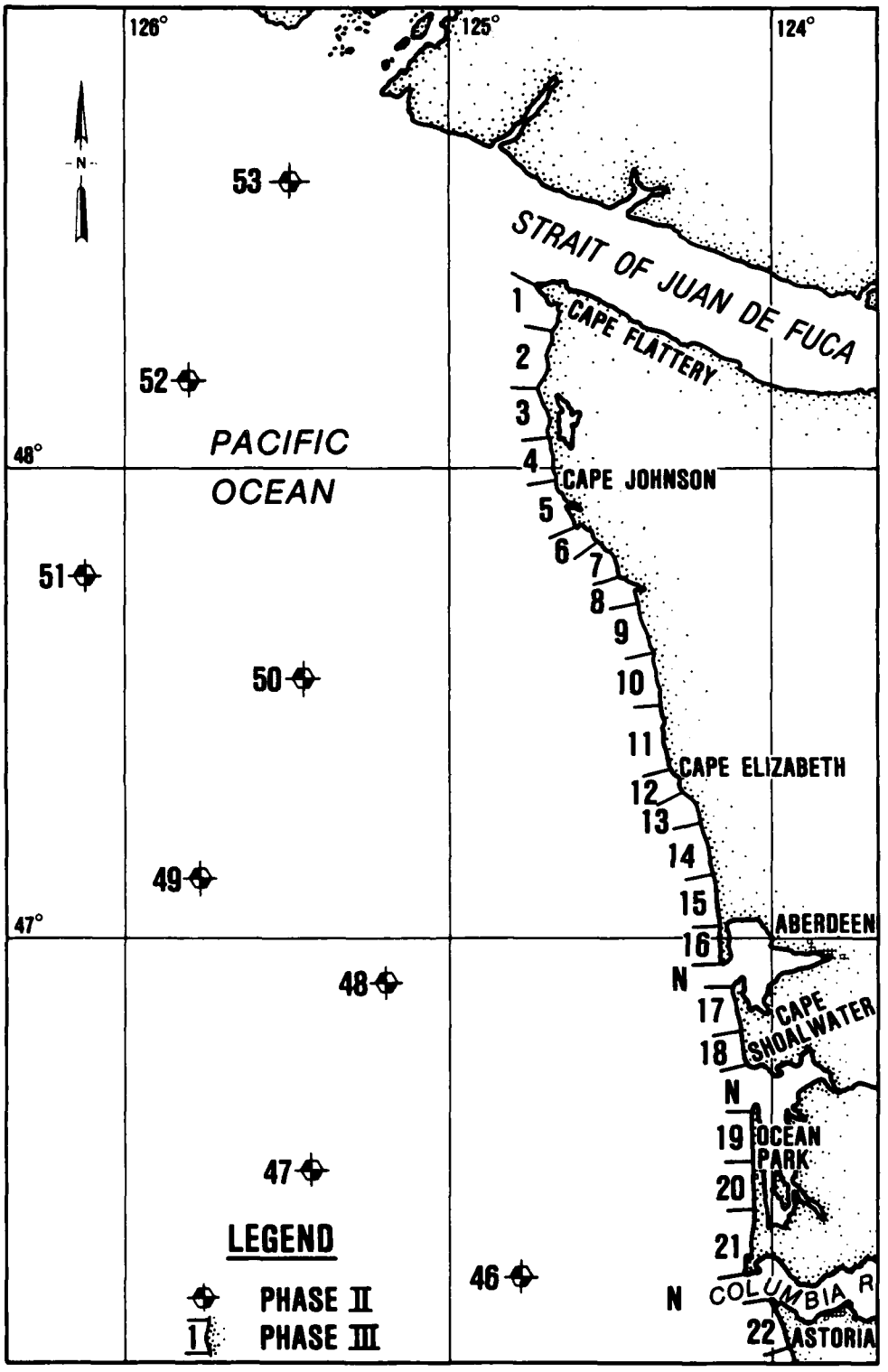

Figure D8.1. Pacific coast - Phase III (Region 1)

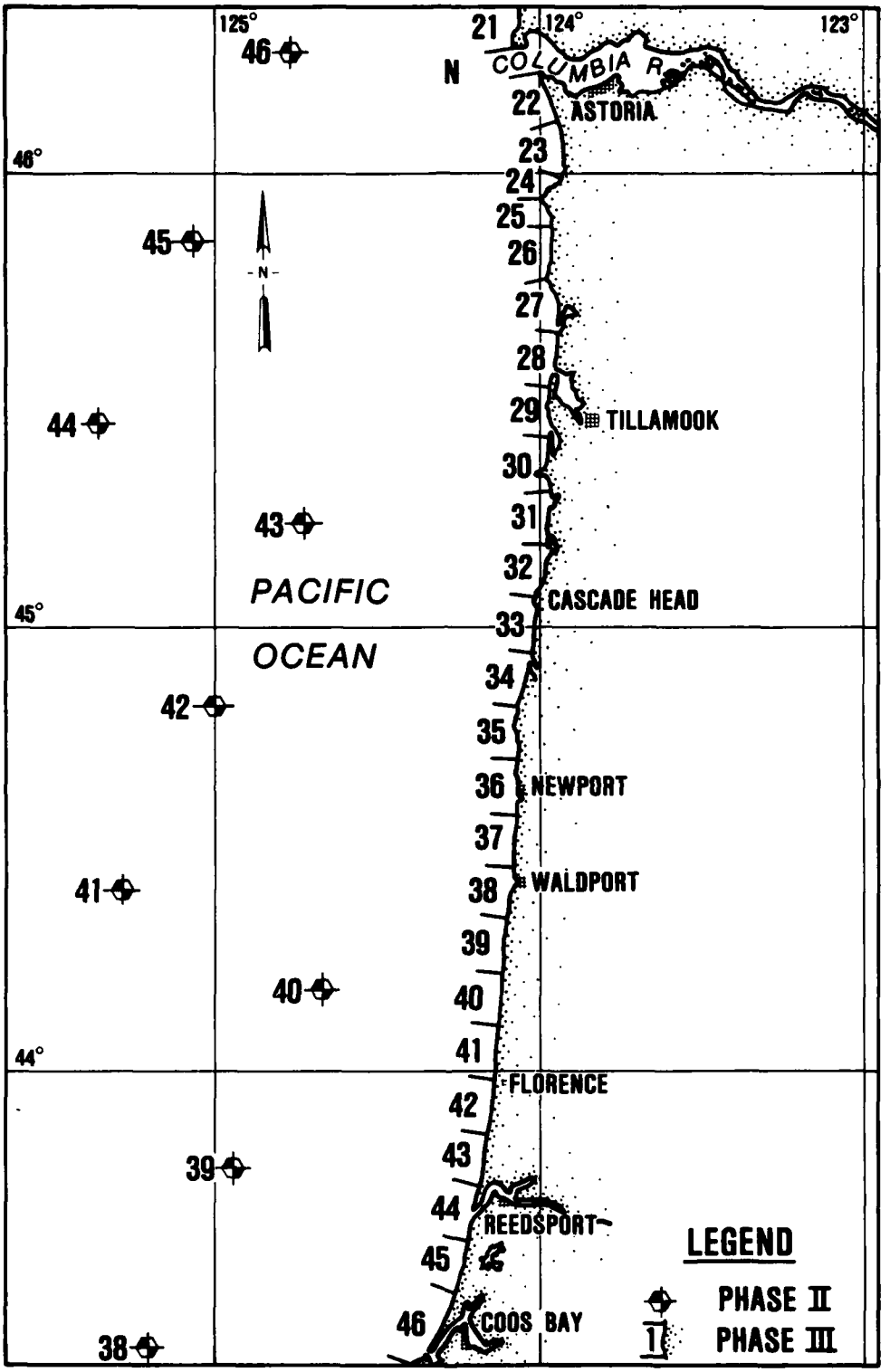

Figure D8.2. Pacific coast - Phase III (Region 2)

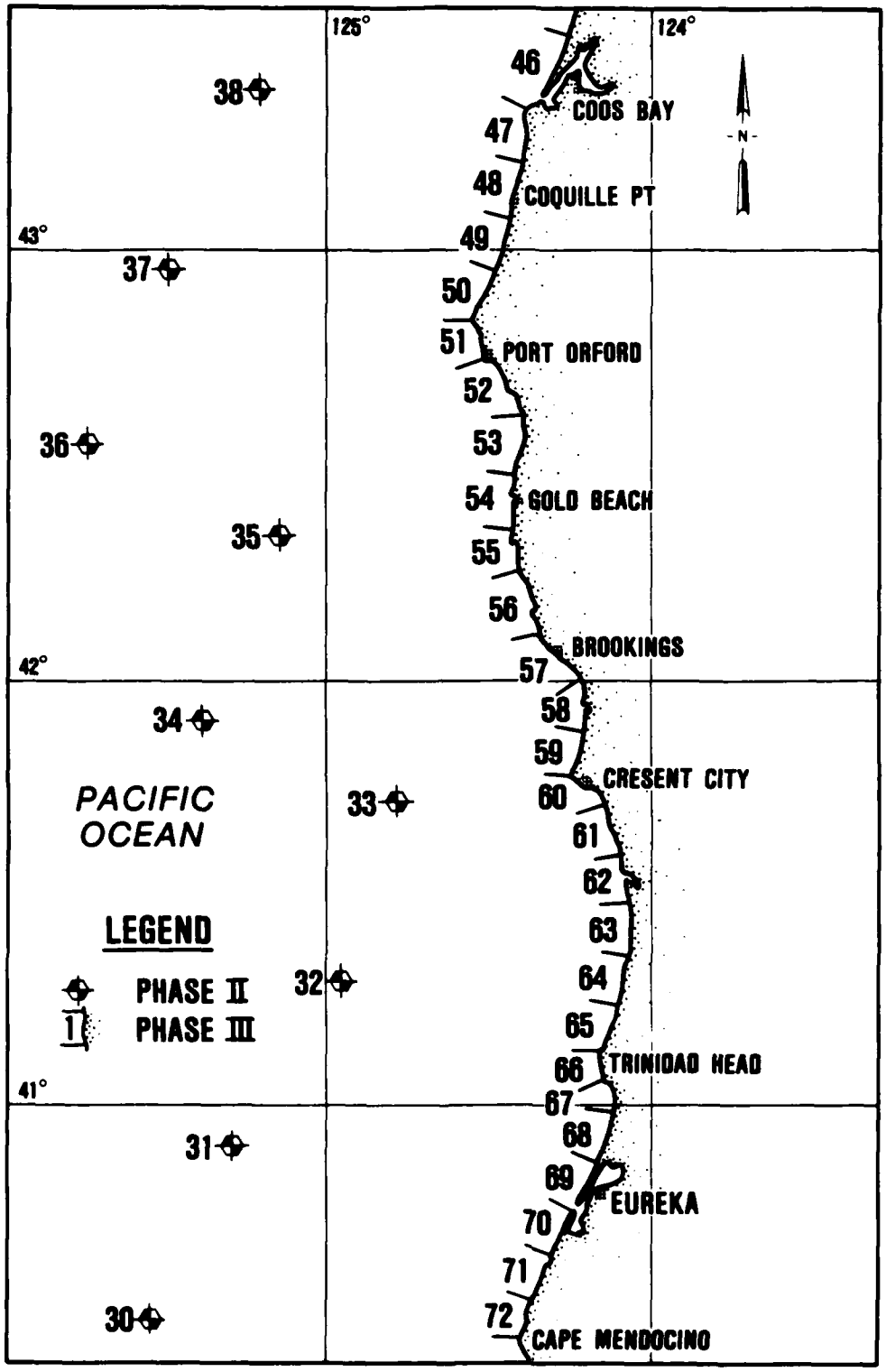

Figure D8.3. Pacific coast - Phase III (Region 3)

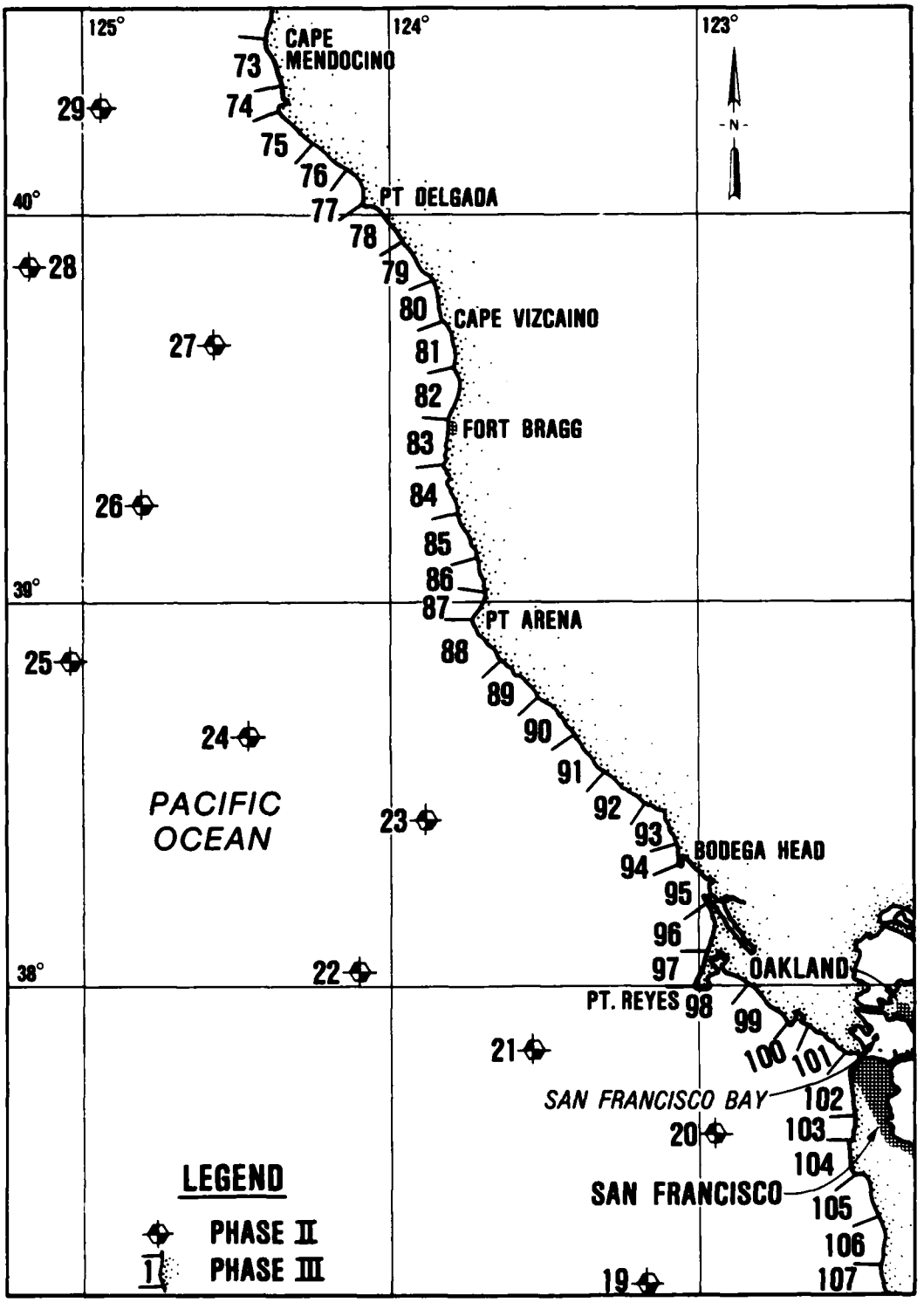

Figure D8.4. Pacific coast - Phase III (Region 4)

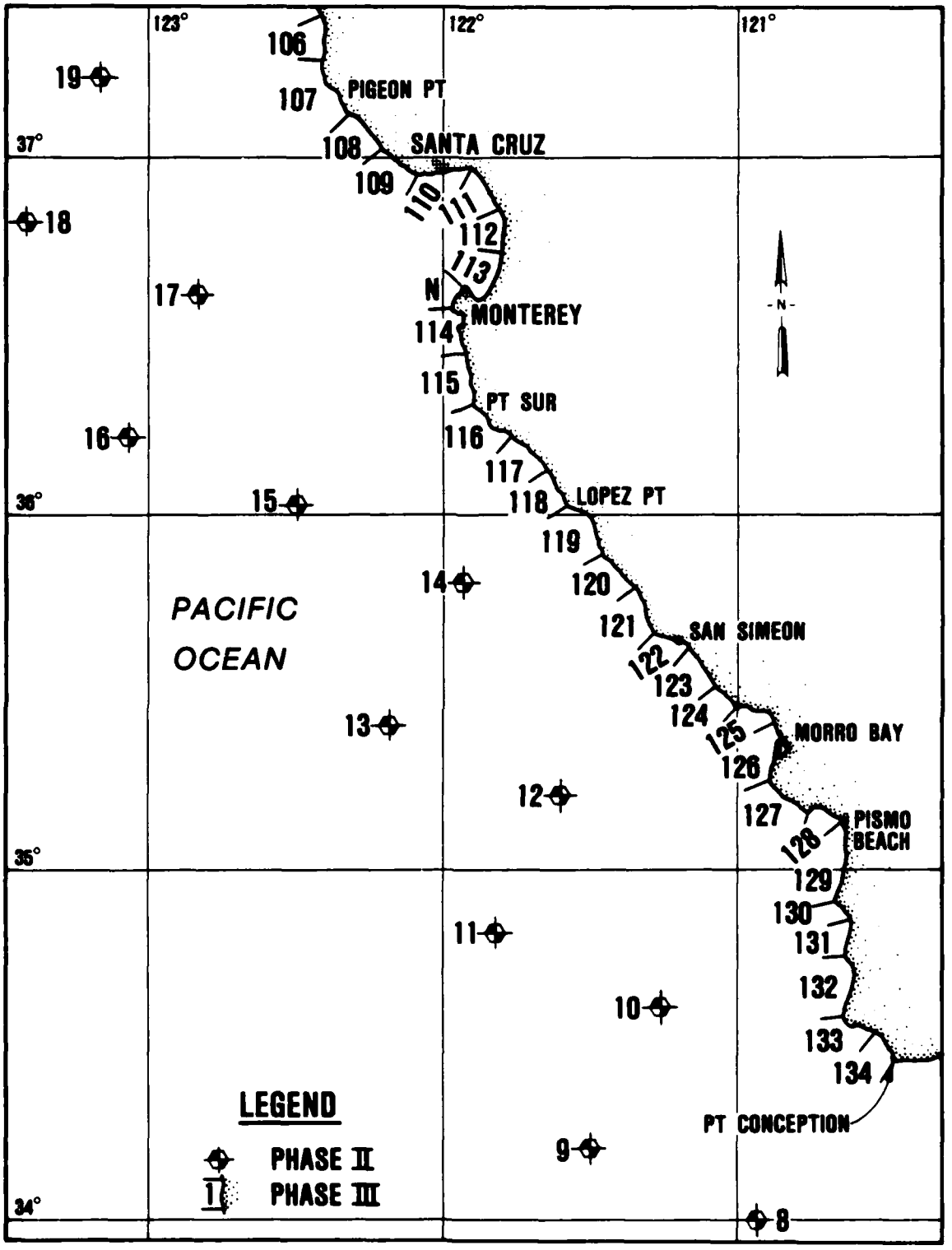

Figure D8.5. Pacific coast - Phase III (Region 5)

APPENDIX E: SEAS DIAGNOSTIC CODES

Function	Code #	Definition	Action
DF	1	MASTQ file access problem	Call US Army Engineer Waterways Experiment Station (WES)*
ED	6	File create failure	Check USERID (SMCL command) to be sure adequate disc space is available; if not, request more from WES ITL**
ED	7	Spawn job failure	Call WES*
PR	2	MASTQ file write error	Call WES*
PR	3	File create failure	Check USERID (SMCL command) to be sure adequate disc space is available; if not, request more from WES ITL**
PR	4	File attach error	Call WES*
PR	5	Invalid report record status	Call WES*
PR	6	Spawn failure for batch report	Call WES*
PR	7	File purge failure	Call WES*
PR	8	MASTQ file access problem	Call WES*
PF	1	MASTQ file purge error	Call WES*
PF	2	MASTQ file attach error	Call WES*
PF	3	MASTQ file reset error	Call WES*

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FTS 542-3990

** WES Information Technology Laboratory, Customer Assistance Group
601/634-2131
FTS 542-2131

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